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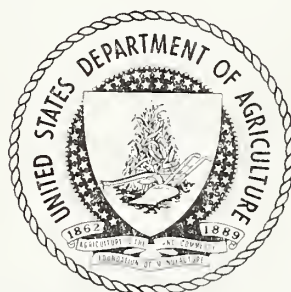
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PLANS

Flathead Nat. Forest

3
TIMBER MANAGEMENT PLAN,
CORAM WORKING CIRCLE,
FLATHEAD NATIONAL FOREST,
MONTANA,
1961 //

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TIMBER MANAGEMENT PLAN
CORAM WORKING CIRCLE
FLATHEAD NATIONAL FOREST
REGION ONE, MONTANA
1961
TITLE AND APPROVAL SHEET

Submitted by <u>/s/ Richard A. Strong</u> District Forest Ranger	Date <u>5/25/61</u>
<u>/s/ Lloyd R. Weir</u> District Forest Ranger	Date <u>5/24/61</u>
<u>/s/ John C. Robertson</u> District Forest Ranger	Date <u>5/24/61</u>
<u>/s/ David L. Owen</u> District Forest Ranger	Date <u>5/22/61</u>
Approved by <u>/s/ F. J. Neitzling</u> Forest Supervisor	Date <u>5/26/61</u>
Approved by <u>/s/ W. H. Johnson</u> Acting Regional Forester	Date <u>7/10/61</u>
Approved by <u>/s/ Edward C. Crafts</u> <u>/s/ DJM</u> Acting Chief	Date <u>9/10/61</u>

Reviewed by:

DIVISIONS	NATIONAL FOREST ADMINISTRATION			
	Regional Office		Washington Office	
	Initials	Date	Initials	Date
Timber Management	/s/ GFW WHJ	7/7/61		
Recreation, Lands & Watershed Management	/s/ EFB	7/7/61		
Range & Wildlife Mgt.	/s/ MAG	7/7/61		
Fire Control	/s/ MET	7/7/61		
Engineering	/s/ HRW	7/7/61		
State and Private	/s/ EHJ	7/7/61		

RESEARCH
Intermountain Forest and Range
Experiment Station

	Initials	Date
Forest Management	/s/ CAW ALR	6/15/61
Forest Disease	/s/ JWK	6/ 5/61
Forest Insect	/s/ DEP	6/12/61

FLATHEAD NATIONAL FOREST

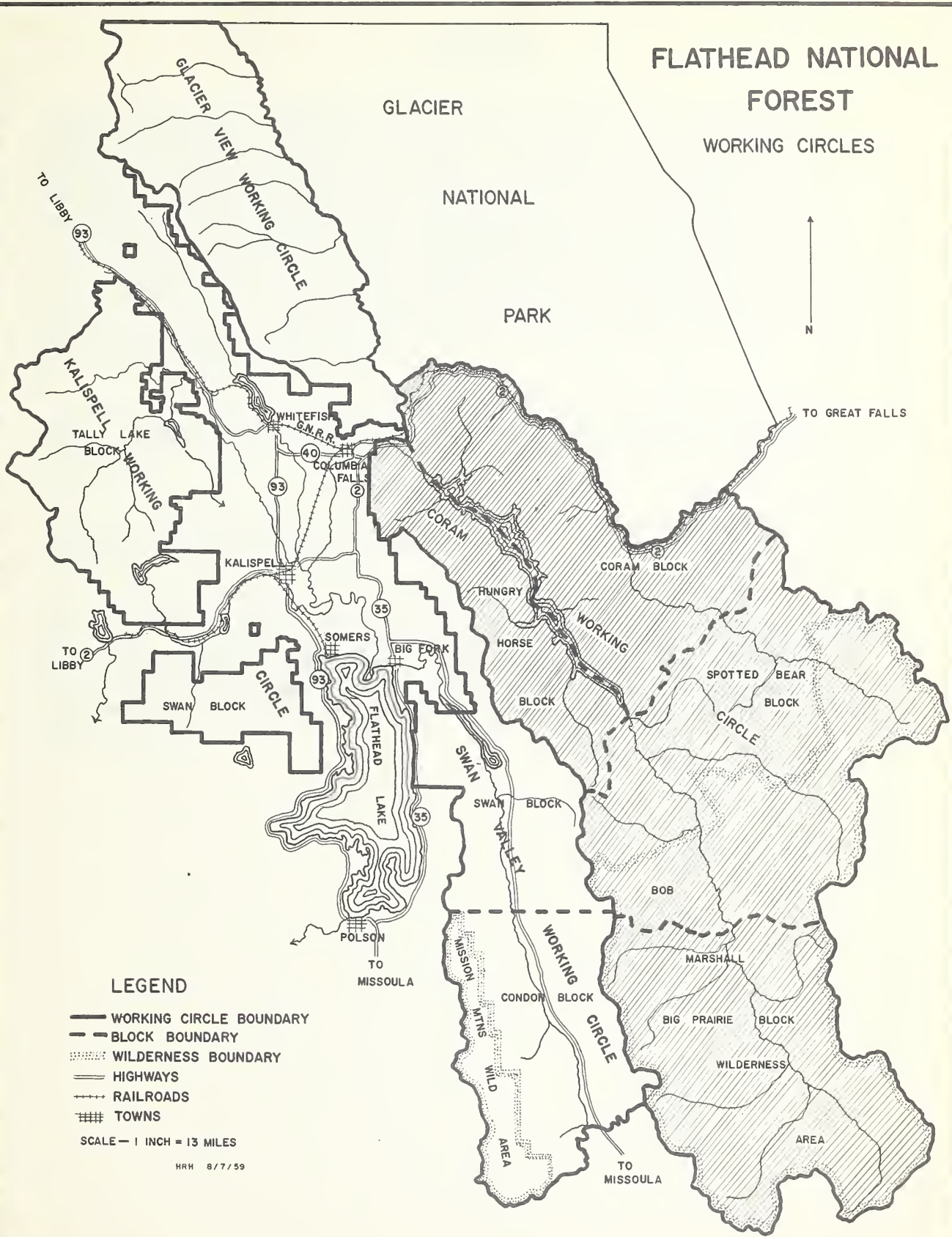
WORKING CIRCLES

GLACIER

NATIONAL
PARK

N

TO GREAT FALLS



LEGEND

- WORKING CIRCLE BOUNDARY
- - BLOCK BOUNDARY
- WILDERNESS BOUNDARY
- == HIGHWAYS
- +++ RAILROADS
- |||| TOWNS

SCALE — 1 INCH = 13 MILES

HRH 8/7/59

FOREWORD

Instructions from Congress provide that the national forests shall be managed to furnish a continuous supply of timber for the use of necessities of citizens of the United States. Forest Service policy requires the development and application of multiple use and sustained yield management of the national forests, working circle by working circle, as outlined in the Multiple Use-Sustained Yield Act of June 12, 1960. It is the purpose of this plan to apply the timber management policies and objectives of national forest administration growing out of related Federal laws, and as currently set forth in the Forest Service Manual, to the management of the timber resources of the national-forest lands within the Coram Working Circle.

The plan is primarily concerned with the nonreserved national forest lands. However, the acreages and volumes for the reserved national forest lands and the intermingled forest lands in other ownerships are recorded.

Basic data on area and volume for the plan were collected and compiled during the years of 1959 and 1960.

The original draft of the plan was written by District Rangers Lloyd Weir, Richard Strong, David Owen and John Morrison; with tables, inventory, and compilation by Timber Management Assistant Harold Howard, and Timber Management Staffman Robert Gillespie. They concurred in the final draft of the plan. The plan preparation was under the supervision of Forest Supervisor Fred J. Neitzling and coordinated by Arthur B. Bowman, Forester.

SUMMARY
CORAM WORKING CIRCLE
FLATHEAD NATIONAL FOREST

A. LAND AND TIMBER OWNERSHIPS

Owner-ship	Land Area				Sawtimber Volume				Other Prod.
	Non-Forest	Forest		Total	L-DF	S	Other	Total	
		Noncom.	Com.						
	acres	acres			MM bd.ft.	Scrib.	C)		Mcords
Nat.For.									
Nonres.	30,100	250,620	466,050	746,770	1,248.2	1,273.7	698.5	3,220.4	2,566
Res.	6,630	335,129	367,683	709,442	429.3	755.8	625.1	1,810.2	1,895
Coram									
Exp.For									
Nonres.	20	50	6,441	6,511	48.5	8.9	8.9	66.3	42
Res.			834	834					
Other Fed.	700	40	2,527	3,267	17.7	2.1	2.7	22.5	18
State	60		317	377	1.9	1.0	.9	3.8	2
Private	3,954	439	11,057	15,450	14.8	7.6	11.1	33.5	58
Total	41,464	586,278	854,909	1,482,651	1,760.4	2,049.1	1,347.2	5,156.7	4,581

*Includes reserved portion of Coram Experimental Forest

B. NET GROWTH IN BOARD FEET ALL SPECIES - NONRESERVED - NATIONAL FOREST

Sawtimber	Present (PAI)	Sustained Yield Capacity	
	Annual Growth	Normal	Realizable (70% Normal)
Total Volume (MM Bd.Ft. Scrib. C)	29.0	65.3	45.7
Average per acre (bd.ft.Scrib. C)	82.	140.	98.

C. ALLOWABLE ANNUAL CUT - NONRESERVED - NATIONAL FOREST

AAC	Annual Cutting Areas by Type						Allowable Annual Cut by Species						Other Prod.
	WP-PP	L	D	S-AF	LP-WLP	Total	WP-PP	L	D	S-AF	LP-WLP	Total	
	acres						MM bd.ft. (Scrib C.)						
Final Harvest	20	980	580	1,210	750	3,540	.9	11.9	6.5	20.4	7.3	47.0	34.0
Intermediate	0	100	570	230	1,600	2,500	0	.5	.8	1.7	.7	3.7	8.0

Revision Date - 1970

MANAGEMENT PLAN

1. LAND DESCRIPTION

- a. Location: The Coram Working Circle lies west of and along the Continental Divide in northwestern Montana. It includes the eastern part of Flathead County and smaller portions of Missoula, Powell, and Lewis and Clark Counties. The unit consists of the entire drainages of the Middle and South Forks of the Flathead River. It is the eastern-most working circle within the Flathead National Forest. The town of Columbia Falls is near the northwestern corner of the unit.
- b. Boundaries: The Middle Fork of the Flathead River and Bear Creek form the north boundary of this working circle and also the south boundary of Glacier National Park. The eastern boundary is the Continental Divide. The south boundary follows the Divide between the South Fork of the Flathead and the North Fork of the Blackfoot Rivers. The Swan Range north to Lake Blaine forms the western boundary and separates this working circle from the Swan Working Circle. The western boundary continues from Lake Blaine north to the Flathead River, roughly following the edge of agricultural land in the Flathead Valley. With the exception of the divide between this working circle and the Swan Working Circle, the forest boundary is identical to the working circle boundary.
- c. Subdivisions: The working circle is divided into four blocks and 119 compartments. Compartment boundaries are delineated adequately by topographic features.

Table 1

Block and District	Number of Compartments	Gross Area National Forest acres	Percent of Area in Each Block
Coram ^{1/}	48	321,896	21
Hungry Horse	24	182,825	13
Spotted Bear ^{2/}	38	538,928	37
Big Prairie ^{3/}	9	419,908	29

- d. Relation to Other Working Circles: Except along the north edge, this working circle is set apart from adjoining working circles by high divides on all sides. Along the north edge U. S. Highway #2 links it with three working circles to the west--all on the Flathead Forest--and with the Three Rivers Working Circle of the Lewis and Clark National Forest to the east. Marias Pass on Highway #2 crossing the Continental Divide restricts somewhat the transportation of raw products eastward.

^{1/} Includes 7,345 acres of Coram Experimental Forest.

^{2/} Includes 289,534 acres of reserved area in Bob Marshall Wilderness Area.

^{3/} All within the Bob Marshall Wilderness Area.

The natural outlet for this working circle is westward along U.S. #2 toward the Flathead Valley. Inasmuch as the Valley provides manufacturing facilities for three other working circles as well as for this one, it may be expedient at some future time to combine all four units into one large working circle representing the whole forest.

Other advantages from such a move would be a better age class distribution and cutting flexibility. It would not be appropriate to form such a combination at the present time since newly approved plans exist for the other three working circles.

2. SUMMARY OF RESULTS UNDER PREVIOUS PLANS

- a. Previous Plans: The Coram Working Circle has been managed under a management plan prepared by Bert A. Bealy and John R. Castles in 1951, and revised in 1955 by G. F. Weyermann and M. L. Yuhas. This plan has never had formal approval of the Region or the Chief. The plan recommended an annual allowable cut of 24 MM board feet. The average actual annual cut for the period 1952-1959 was 23 MM board feet. From the beginning of logging in the working circle through 1959, a total of 378,617 M bd.ft. has been cut. (See Appendix Table 32.)

An epidemic of spruce bark beetles occurred, caused by extensive blowdowns in 1949 and 1950 following extremely high winds. This infestation reached its peak in 1953 and has since subsided to endemic proportions.

During the bark beetle epidemic logging was, for the most part, confined to salvaging infested spruce. The road system constructed during the period is not altogether adequate to serve present resource management needs. It should be remembered that time was a critical factor in salvaging as much infested timber as possible.

In 1957 a tentative revision of the plan was made which considered certain inventory changes and also the impact of subsequent developments such as the Hungry Horse Dam, the east and west side roads along the reservoir, improvements of U. S. Highway #2, and the proposed Spruce Park Dam.

- b. The Current Plan: Revision of earlier plans is necessary at this time because:

- (1) More refined basic inventory and growth data has been secured.
- (2) New utilization standards, limits of operability, and the development of improved logging equipment has changed the economic picture.
- (3) Past management practices need reevaluation and new management practices, transportation plans, and research findings need to be considered and incorporated into the plan.

- (4) Working circle, block, and compartment boundary changes are necessary for efficient management of the timber resource.
- (5) The principles of multiple use management need to be more fully integrated into the timber management plan.

3. FOREST DESCRIPTION

- a. Land Ownership and Land Class: This working circle consists of almost solid national forest ownership. State and private lands are found only along U. S. Highway #2 along the northwest boundary of the unit, and in the vicinity of the towns of Hungry Horse, Coram, and Martin City. Table 2 shows the major land classes by ownership.

Appendix Table 2 shows the ownership and land class by block.

Table 2

AREA BY LAND CLASS AND OWNERSHIP

CORAM WORKING CIRCLE

Class of Land	Nat.For.	Exp.For.	Other Fed.	State	Private	Total
	<u>acres</u>					
Nonreserved						
Commercial	466,050	6,441	2,527	317	11,057	486,392
Noncommercial	250,620	50	40	-	439	251,149
Nonforest	30,100	20	700	60	3,954	34,834
Reserved						
Commercial	367,683	834	-	-	-	368,517
Noncommercial	335,129	-	-	-	-	335,129
Nonforest	6,630	-	-	-	-	6,630
Total	1,456,212	7,345	3,267	377	15,450	1,482,651
Percent	98.2	.5	.2	.1	1.0	100.0

The Coram Experimental Forest, near Martin City, was established for the study of management practices in the larch-Douglas-fir type. This area has not been considered in the calculations of the allowable cut, since timber harvest will be dictated by the research needs. The 834 acres shown in Table 2 as reserved is a natural area where no logging or developments are planned.

The remaining 709,442 acres listed as reserved lies in the southern portion of the working circle and comprises the major part of the Bob Marshall Wilderness Area. About one half of this area is non-forest or noncommercial. The commercial forest land has not been considered in this plan.

Areas subject to special treatment are shown in Table 3.

Table 3

SPECIAL MANAGEMENT AREAS BY BLOCKS

Special Management Areas	Coram	Blocks		Total
		Spotted Bear acres	Hungry Horse	
Administrative Sites	13	541	31	585
Powerline withdrawals	250	-	-	250
Existing camp & picnic areas	11	9	82	102
Totals	274	550	113	937

All areas shown in Table 3, except powerline withdrawals, are expected to produce some timber. Table 4 shows land areas by blocks and counties. Other than portions of the Big Prairie block, all of the working circle lies in Flathead County.

Table 4

LAND AREA BY BLOCKS AND COUNTIES

County	Block				Total
	Coram	Hungry Horse	Spotted Bear acres	Big Prairie	
Flathead	337,236	186,579	538,928	81,115	1,143,858
Lewis & Clark	--	--	--	39,448	39,448
Missoula	--	--	--	43,089	43,089
Powell	--	--	--	256,256	256,256
Total	337,236	186,579	538,928	419,908	1,482,651

b. General: Of the nonreserved national forest land 62% is classed as commercial. For the most part commercial forests extend from the valley bottoms to subalpine conditions, broken only by steep, rocky noncommercial areas on the more exposed locations and some nonforest areas such as Hungry Horse Reservoir and scattered mountain meadows. There is practically no agricultural land within the working circle.

c. Forest Types: Larch and Engelmann spruce are the most important timber types economically, accounting for 23.6 and 21.0 percent of the commercial forest land, respectively. Much of the spruce type is found in the higher basins and ridges presenting difficult logging chances. The Douglas-fir type, representing 14.4 percent of the total commercial forest land also presents difficult logging problems in that it is located mostly on steep, rocky, south slopes. Lodgepole pine type comprises 26.9 percent of the total commercial forest land. At the present time there is very little

demand for this species. The area of lodgepole pine type is expected to decrease in the future as larch and spruce replace it by more sustained growth or greater longevity. Much of the lodgepole pine type has an understory of tolerant species, particularly on north slopes and moist sites. Future management practices generally will favor the associated species over lodgepole pine.

The remaining commercial forest land is composed of alpine fir and whitebark pine types, with minor areas of western white pine, ponderosa pine, and cottonwood. The area of alpine fir and whitebark pine types will probably decrease in the future as other species are favored. Ponderosa pine and cottonwood types are expected to remain about the same in area. There are few ponderosa pine sites on this working circle. Western white pine as a type will probably decrease, since this working circle is outside of the blister rust control zone for this species. The recommended silvicultural practices for timber types in this region will also favor the expansion of larch, spruce, and Douglas-fir types in this unit.

- d. Growing Stock - Area: Distribution of growing stock by types, size classes, and ownership is shown in Table 5. The size class distribution for the working circle as a whole might be considered good. By blocks and by individual types it is not generally so. Certain types, such as spruce, white pine, and ponderosa pine have very little pole, sapling or seedling growing stock, or none at all; while others, such as lodgepole pine, have a great overabundance. This above, however, can be misleading. Actually only 47 percent of the stocked acres should be considered growing stock. The remainder is old overmature stands that should be converted to young thrifty stands at the earliest date. The negative growth of these old stands, when combined with that of the younger stands, tends to distort the picture of the growth potential for the working circle.

Site qualities in the working circle are essentially medium or poor for all major types except lodgepole pine (Appendix Table 19). For lodgepole pine it averages between good and medium, but it should be recognized that this "higher than average" rating is largely attributable to yield table site classification techniques which award higher site qualities to lodgepole pine than other species having the same or even faster rates of growth.

The better sites generally are located at the lower elevations. Site qualities for most types gradually decrease as elevations approach 6,000 feet. At this point sites are too severe for commercial timber production.

Age class distribution by types is shown in Appendix Table 18. The younger age classes are found mostly in the lodgepole pine and Douglas-fir types. There is a large area of two-story stands classed as sawtimber which will revert to a smaller size class when the overstory is removed. Appendix Table 18 shows that most of the larch and spruce types are over rotation age. The trend under management will be toward better age class distribution.

Stocking of trees is variable according to many influential factors. For the working circle as a whole, 31% of the commercial forest land is classed as well-stocked, 44% medium-stocked; 25% poorly-stocked, and 1% nonstocked. In some instances such figures can be misleading and the situation is

Table 5

COMMERCIAL FOREST LAND BY OWNERSHIP, TYPE, AND STAND SIZE CLASSCORAM WORKING CIRCLENATIONAL FOREST - NONRESERVED

Forest Type	Saw-Timber	Pole Timber	Seedling Sapling	Stocked Sub-Total	Non-Stocked	Total	Per Cent
			acres				
WP	800	105	--	905	--	905	.2
P	805	--	--	805	--	805	.2
L	84,478	5,771	18,449	108,698	1,420	110,118	23.6
DF	38,777	18,537	9,415	66,729	260	66,989	14.4
S	89,229	3,295	2,375	94,899	2,900	97,799	21.0
AF	13,030	6,565	13,975	33,570	600	34,170	7.3
LP	--	70,658	54,251	124,909	340	125,249	26.9
WLP	12,320	11,240	5,965	29,525	185	29,710	6.4
Co-A-OH	225	65	15	305	--	305	--
Total	239,664	116,236	104,445	460,345	5,705	466,050	100.0
Percent	51.4	24.9	22.4	98.7	1.3	100.0	

NATIONAL FOREST - RESERVED

All Types	135,627	161,318	66,437	363,382	5,135	368,517	
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NATIONAL FOREST - CORAM EXPERIMENTAL FOREST

All Types	5,651	585	150	6,386	55	6,441	
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OTHER FEDERAL

All Types	1,902	545	80	2,527	--	2,527	
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STATE

All Types	277	35	5	317	--	317	
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PRIVATE

All Types	2,508	3,372	5,157	11,037	20	11,057	
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ALL OWNERS

All Types	385,629	282,091	176,274	843,994	10,915	854,909	
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somewhat better than it appears. For instance, many of the poorly-stocked sawtimber stands have an understory of young growth which is medium to well stocked. Some of these understories will be a factor in future management.

Thriftness is highly variable in most immature stands and generally much poorer than it should be. Stagnation and overall low vigor is becoming readily apparent in most of the overstocked seedling and sapling stands. An aggressive thinning and weeding program should be initiated at the earliest possible time in young stands that have not been stagnated for too long a period. Aspect and site quality also have an important bearing on thrift.

- e. Growing Stock - Volume: Volumes in board feet of the primary sawtimber growing stock are shown in Table 6, for the whole working circle. It is also shown by blocks in Appendix Table 4. The appendix tables show volumes in cubic feet for two size classes, poletimber (5.0" dbh to 10.99" dbh) and sawtimber (11.0" dbh and over). Volumes for sawtimber trees are shown in board feet, Scribner Decimal C. Appendix Tables 4, 5, 6, and 7 show total volumes by ownerships; Appendix Tables 8, 9, 10, and 11 show volumes by strata and species for national-forest land only. Average acre volumes secured from sampling are shown in Appendix Tables 12 and 13.

The total volume of growing stock on commercial forest lands is 882.7 million cubic feet + 70.6 MM cu.ft. (8% sampling error) two times out of three. Of this, 230.9 MM cu.ft. is in pole size trees. The sawtimber portion contains 3,220.4 MM board feet + 257.6 MM board feet.

Four species--larch, Douglas-fir, spruce, and lodgepole pine--make up 88 percent of the total volume. The lodgepole pine type, representing 27 percent of the total commercial area, has only 9 percent of the total volume.

Other Federal, state, and private land has an estimated 59.8 MM board feet of sawtimber and 6,989 M cubic feet of pole size material.

Besides the volume of growing stock present there are 1,783 M cords of salvable dead and useable cull material on national-forest lands, and 80 M cords on the other ownerships. Only a small portion of this material is presently utilized.

- f. Timber Quality: Log grade data secured from inventory samples are shown in Appendix Table 20. Of the various species, larch alone has a high proportion of high grade material.

4. MANAGEMENT PROBLEMS AND OBJECTIVES

The overall management objectives are to develop the various resources to the fullest extent within the principles of multiple use management. The timber resource will be managed to gain the maximum productivity, the most favorable composition, and the highest quality products

AREAS AND VOLUMES BY TYPES, SPECIES, AND OWNERSHIP

Table 6

NATIONAL FOREST - NONRESERVED

Forest Type	Comm. Area acres	Species										Total	Other Products M cords
		WP	PP	L	DF	Scribner C		AF-GF WRC	LP- WLP	Hdw			
						MM board feet	S						
W.pine	905	3.7	--	1.4	1.3	1.3	.1	--	--	--	7.8	5	
P.pine	805	--	2.8	.8	1.9	.1	--	.1	--	--	5.7	3	
Larch	110,118	42.0	--	752.5	187.4	92.7	45.5	40.3	--	--	1,160.4	612	
D.fir	66,989	18.1	--	27.4	185.0	38.0	10.1	21.0	--	--	299.6	531	
Spruce	97,799	--	--	--	24.0	1,071.7	164.5	35.2	--	--	1,295.4	339	
LPpine	125,249	--	--	34.6	23.9	43.6	20.9	176.9	--	--	299.9	839	
A.fir	34,170	--	--	--	--	10.4	54.4	11.4	--	--	76.2	87	
WLPine	29,710	--	--	7.9	--	15.9	--	49.9	--	--	73.7	149	
Cottonwood	305	--	--	--	.1	--	--	.1	--	1.5	1.7	1	
Total	466,050	63.8	2.8	824.6	423.6	1,273.7	295.5	334.9	1.5	1.5	3,220.4	2,566	

NATIONAL FOREST - RESERVED

All	368,517	20.1	1.3	283.4	145.9	755.8	177.3	426.4	--	1,810.2	1,895
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CORAM EXPERIMENTAL FOREST

All	6,441	2.3	--	33.6	14.9	8.9	2.6	4.0	--	66.3	42
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STATE

All	317	.5	--	1.4	.5	1.0	.2	.2	--	3.8	2
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PRIVATE

All	11,057	.5	--	9.2	5.6	7.6	1.3	7.6	1.2	33.5	58
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OTHER FEDERAL

All	2,527	.8	--	12.1	5.6	2.1	.7	1.2	--	22.5	18
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Table 7

SALVABLE VOLUMES IN CULL AND DEAD TREES BY OWNERSHIP

AND MAJOR TYPES

NATIONAL FOREST - NONRESERVED

Forest Type	National Forest	Other Owners	Total
		<u>M cords</u>	
W.pine	5	--	5
P.pine	3	--	3
Larch	591	48	639
D.fir	271	17	288
Spruce	625	5	630
LPpine	212	10	222
A.fir	39	--	39
WLpine	37	--	37
Total	1,783	80	1,863

commensurable with the existing economy, and primary land uses. The production of sawtimber will be given prime consideration, inasmuch as the local forest industry is based upon this product. In order to attain the overall objectives the following problems will be considered.

a. Community Stabilization:

The sawmill capacity of the Flathead Valley, based on past performance, is estimated to be 300 million board feet. This is believed to be in excess of the sustainable cut from all timber sources in the valley.

Objectives to aid in stabilization of local communities are as follows:

- (1) Provide a steady supply of forest resources at a maximum sustained yield level.
- (2) Encourage new industry which will more fully utilize the available forest products not now considered merchantable or of little value
- (3) Encourage the use of permanent communities rather than logging camps and temporary communities.

b. Marketing Program

- (1) Program sales and rate of cutting to meet the more urgent silvicultural, insect and disease control, and salvage problems.
- (2) Design sales to satisfy the needs of industry within the limits of the allowable cut and subject to item (1) above.

- (3) Encourage the sale of salvage materials and products under sawtimber size.
- (4) Inform industry of our sales program.
- (5) Seek to obtain complete utilization, new uses and new markets for the materials that are now considered unmerchantable, or have a limited market.

c. Silvicultural Practices

The application of proper and timely silvicultural practices are necessary for the production of forest products of the greatest quantity and quality. The best silvicultural practices to be applied in each case will be determined by an analysis of the conditions within the stand itself, and the influence that any alteration may have on other land uses in, adjacent to, or down stream from the stand. Some of these conditions are: composition, thrift, age, erosion, flood potential, and conflict with other land uses.

Management objectives pertaining to each timber type are outlined in the Regional Marking Guides which constitute approved regional policy. At times other forest uses and values will influence the modification of practices outlined in these guides.

The general objectives, regardless of type, will be to harvest the crop in such a manner as to:

- (1) Obtain complete utilization of the forest crop designated for harvesting.
- (2) Provide for a new crop of the most valuable species that the site and economic conditions will support.
- (3) Maintain growing stock in thrifty condition.
- (4) Capture as much mortality and stimulate as much growth as possible through intermediate cuttings.
- (5) Give priority to cutting in mature or overmature stands where loss by insect or disease may equal or exceed growth.

d. Growing Stock: The long range objective is to bring the growing stock on all commercially productive land to near normal conditions by the end of the first rotation. An intermediate goal is to adjust the growing stock to 70% of normal as quickly as economic conditions will allow. Means of accomplishing this are to:

- (1) Improve the age class distribution by clear cutting about 3,540 acres of mature and overmature timber annually.

- (2) Intensify surveys and studies of understocked areas and provide for adequate stocking of these areas by planting, or other means, as funds become available.
- (3) Plant or reproduce by other means those cutting areas that have not reproduced naturally by the end of the third growing season after site preparation.
- (4) As funds become available, thin those young overstocked stands that are not stagnated to stimulate growth of crop trees.
- (5) Implement an intermediate cut sales program in well stocked immature stands as rapidly as market conditions will permit.

e. Forest Development

- (1) Strive for early completion of the planned access road system through well planned timber sales and appropriated funds.
- (2) Consolidate national forest ownership where it will enable better protection and more efficient administration.
- (3) Coordinate all timber cutting with land use plans for the unit and strive for full multiple use management.

f. Sustained Yield: Attain the optimum sustained yield level in the shortest time.

5. COORDINATION WITH OTHER USES

Timber management policies and practices will be closely correlated with multiple use objectives (FSM 2413.1).

- a. Recreation: Before the construction of Hungry Horse Dam the recreation use on the working circle was moderate. Subsequent to completion of the dam, roads have been built or improved on both sides of the reservoir and the recreation use of the area has increased tremendously. From 1952 to 1960 the recreation visits increased nearly 5 times. During 1960 an estimated 81,620 visitor days were recorded. It is anticipated that this use will continue to increase in the future. In addition, the Hungry Horse Reservoir provides over 22,500 acres of waterway for the fishing and boating enthusiast.

The National Forest Recreation Survey has been completed for the working circle. This survey indicates existing and proposed recreational areas. Included are campgrounds, summer home colonies, ski areas, boat landings, and roadside, trailside, and streamside zones.

Principles and objectives applying to the management of timber stands on recreation areas, described in FSH 2312.32 and 2413.22, will be followed. Generally, the policy is that on present and potential recreation areas cutting methods and logging practices will be used which will promote safety and preserve or enhance the recreational values.

Within the working circle a total of 709,442 acres at the head of the Middle Fork and South Fork were set aside in 1940 under Regulation U-1 as part of the Bob Marshall Wilderness Area. This area will be managed in accordance with the recreation area plan for the Bob Marshall Wilderness Area. The area was set aside in accordance with the Forest Service policy to provide within the multiple use principle of management, wilderness and wild areas sufficient in number and size to accommodate present and future needs for recreation of this type.

No timber sales will be made within the wilderness area. Timber within this area has not been considered in determining allowable cut.

A recommendation for boundary adjustment of the Bob Marshall Wilderness Area has been completed but it is not contemplated that any adjustments will be made during the period of this plan.

- b. Wildlife: A wildlife management plan has been prepared and approved for the Big Prairie district, and a plan has been prepared for the combined Coram, Spotted Bear, and Hungry Horse districts. Large fires prior to 1930 have modified prior conditions to create extensive browse areas favorable for big game. The elk population multiplied rapidly due to the abundant food supply. As transitions from browse to timber took place in recent years, the food supply dwindled, limiting big game populations to the available winter food supply.

Outside of the wilderness area there are about 37,000 acres of key big game winter range used primarily by elk and mule deer. Part of this is noncommercial forest land. Big game also uses as winter range certain north slopes and other areas actually unsuited for the production of game food. The critical big game winter range includes about 20,000 acres of commercially productive timberland. On these areas ponderosa pine and Douglas-fir will be favored wherever possible. Cutting practices and logging methods will be used which will enhance big game food production. Coordination of timber management and wildlife will be followed as outlined in FSH 2413.24 and FSH 2632.1.

Generally, even-aged management, by clear cutting in blocks will create favorable big game food production areas and also considerable "edge type" for small game and upland birds.

The South Fork and the Middle Fork of the Flathead River are two of the last strongholds of the cutthroat trout which are native to the Flathead waters. Logging and timber cutting practices adjacent to

these rivers and their tributaries will be modified as necessary to preserve or improve this important resource. Usually timber sale and road contract requirements applying to the protection of streamside zones will be adequate; however, other provisions may be necessary in some instances.

- c. Water: Because favorable soil-water conditions are the foundation upon which all other uses must be based, it is essential that they be given first consideration in all plans. Practices defined in regional policies will provide the protection needed and will be incorporated in all timber sale and road construction contracts. Policies as outlined in FSH 2413.23 and FSH 2482 will be followed.

The Hungry Horse project is dependent on the South Fork of the Flathead for its water supply. Its works are of regionwide importance. The reservoir stores 3,468,000 acre feet of water. The power plant is capable of producing 285,000 KW of power and the controlled release of this stored water increases power production of the entire Columbia River system by 551,000 KW.

Siltation of the reservoir must be kept to a minimum, and a comparatively uniform flow of high quality water must be provided for this project, and other downstream users, on the Columbia River System.

All logging methods, cutting practices, and engineering developments will be planned to minimize watershed damage.

Construction of the Spruce Park Dam on the Middle Fork has been proposed. This dam would be built in the vicinity of Spruce Park. Facilities going along with this project would be a tunnel driven through the mountains to the vicinity of Hoke Creek on the South Fork, and a generating plant installed there on the bank of the Hungry Horse Reservoir. Apparently this project has low priority at the present time. No comprehensive dam impact study has been prepared for this project to date; therefore, it is not known how this would affect timber management planning.

Major points in coordinating timber and water use are:

- (1) First consideration will be given to watershed protection in all timber harvesting and road construction plans.
- (2) Roads and skid trails will be located outside streamside zones, whenever possible.
- (3) Backslope stabilization will be considered on all back and fill slopes which are capable of producing sediment in accordance with FSH 2522 to 2522.24 inclusive.
- (4) Locations of camps and small mills will be controlled to avoid stream pollution.

- (5) Close cooperation with the Bureau of Reclamation, Public Health and other water administrative agencies will be sought.
 - (6) Whenever possible, turbidity studies will be made on side streams where there are no roads at present. These studies will be made at various times but particularly during high water. From these studies the effect of operations on turbidity can be determined. Studies will also be made on other side streams as time and money permit.
- d. Grazing: The domestic range resource on this working circle is relatively unimportant. Temporary permits for 26 cattle and 14 horses have been issued on the Coram block for 1961. This use is at the lower elevations and will be controlled to prevent damage to plantations, reproduction, and soils. Reference is made to FSH 2413.21.

In the vicinity of Spotted Bear, temporary permits may be issued for approximately 65 horses. These animals will be used in connection with recreation use mostly. In addition, other permits will be issued to packers who establish hunting camps. These camps are mostly in the wilderness area, and therefore will not conflict with the timber use.

- e. Mining: There has been no history of active mining within the working circle. Prospecting was carried on from time to time and possible claims exist in Deerlick Creek, Baptiste Creek, Silver Basin, and Disbrow Creek. The surface rights determination program has not yet been completed on the working circle. It is planned to be completed during FY 1962.

6. REGULATION

- a. Rotation: Rotations are set to agree with the culmination of mean annual growth in board feet (Int. 1/8" Rule) for each forest type except lodgepole pine. The rotation for lodgepole pine is set to agree with the culmination of mean annual growth in cubic feet for trees over 5" d.b.h.

Rotations recommended for each of the forest types and used in the calculations of growth and allowable cut are: 120 years for white, ponderosa, and lodgepole pines; 140 years for larch, Douglas-fir, spruce, subalpine fir and whitebark pine. Rotations recommended apply to average site conditions. Individual stands growing on poorer or better sites than average will require more or less time to mature, as the case may be.

Rotations adopted generally are early enough in the lives of the principal species to minimize losses from insects and diseases. They are not sufficiently long to produce much high quality material. If a large proportion of high quality timber is desired, it will have

to be produced by pruning or allowing some stands or trees to exceed the recommended rotation age.

Actually, with the prevailing age class distribution (about 50% of the average is over rotation age), many stands will have to be carried well beyond the recommended rotation age before they are cut. Lack of access roads and other factors contribute to this situation (Appendix Table 27).

- b. Cutting Cycles: As all timber types are brought under even-aged management, reproduction or final harvest cuttings will occur at intervals coinciding with rotation ages. Cuts to improve growing conditions in immature stands, on the other hand, will tend to be cyclic. Intervals between improvement cuttings will coincide as nearly as possible with best growth response. This, for most types, is about 20 years.

Cuttings in young stands generally will not start until volumes to be removed have attained commercial importance. This usually will not occur until the stands reach about one-half rotation age. Cuttings before that time will depend upon unusual market conditions or the availability of appropriated funds.

Satisfactory stocking conditions, according to requirements in the regional marking guides, will be maintained throughout the period of intermediate cuttings.

- c. Growth and Mortality: It is important to obtain the maximum amount of growth from the existing site potentialities and growing stock. Little can be done to change the site potentials at this time. Much can be done to improve the growing stock.

Improvement of growing stock can be accomplished in several ways; of these, betterment of stocking through planting and the making of intermediate cuttings probably will yield the greatest returns. Opportunities to use one or the other of these techniques is everywhere present.

It is not only important to get good growth but to measure it as well. The amount of growth which can be expected influences the allowable annual cut and the economy of the working circle to a marked degree.

Growth and mortality data for this working circle were secured from plots taken during the 1958 and 1959 inventories. This information yielded net periodic annual growth estimates of 29.0 MM board feet of sawtimber and 38.M cords of other products during the period 1950-1959 inclusive (Table 8). Such rates are low compared to productive capacities.

Table 8

CURRENT AND POTENTIAL GROWTH OF SAWTIMBER AND OTHER PRODUCTS
ON NATIONAL FOREST LANDS

Growth and Mortality	Sawtimber		Other Products		
	/acre/yr.	Total	/acre/yr.	Total	
	BF	MMBF	CF	MMCF	M Cds.
<u>Periodic Annual Growth (Net)</u> ^{1/}					
Past 10 years (1950-1959)	3/ 82	29.0	9.6	3.4	5/ 38.0
<u>Mean Annual Growth</u>					
Actual Stocking	75	34.4	-	-	-
<u>Mortality</u>					
Past 5 years (1955-1959)	50	17.8	2.6	.9	10.3
<u>Sustained Yield Capacity</u> ^{2/}					
Normal	4/ 140	65.3	-	-	-
Realizable (70% normal)	98	45.7	-	-	-

Growth potentialities of the working circle, as reflected by site qualities, are well below regional averages for all types except lodgepole (Table 19). For lodgepole they exceed the regional average. Growth rates are correspondingly low.

The sustained yield capacity is, however, much above the indicated present growth. Under fully stocked conditions, the sustained yield capacity can be about 65 million board feet, plus other products. For conditions approximately 70% stocking (with 30% unproductive holes) the capacity could be 46 million board feet, which is about equal to the indicated allowable annual cut for the next ten years. By the application of good forestry practices, both of these "ideals" can be exceeded.

Mortality during the past five years has been high, accounting for 38 percent of the gross growth. One of the main reasons for this excessiveness was the spruce bark beetle epidemic of the early 1950's. This epidemic caused the loss of several millions of board feet on the working circle. Barring other such epidemics, net growth should pick up during the period ahead. There is no assurance,

1/ From inventory data taken in 1958 and 1959.

2/ From "Tables of Yield and Mean Annual Increment of Fully Stocked Stands in Major Forest Types of Region One." U.S. Forest Service, Missoula, Montana, 1957.

3/ For sawtimber and pole strata only.

4/ Pro-rated against total commercial forest acreage of 466,050 acres.

5/ 90 cubic feet = 1 cord

however, that heavy mortality losses can be avoided in the future, since fully 50% of the acreage of growing stock exceeds rotation age and more than that in terms of volume. Moreover, general inaccessibility will often prevent effective control and salvage measures.

Though mortality has been high for the working circle as a whole, it has been very low in young growth of pole size. A substantial increase in net growth can be expected from this segment of the growing stock when it begins to break into the sawtimber category some 20 or 30 years hence.

- d. Cutting Methods: Cutting methods for the various forest types will be in accord with the regional marking guides unless specified otherwise.

Methods called for by the guides will be correlated with other important land uses and adjusted when necessary to accommodate those uses. They will be supplemented by specific marking instructions for each timber sale area. A revision of the guides is in process to more fully cover intermediate cuttings.

Ranger district personnel will supplement the timber management plan with detailed plans in selected compartments, as more intensive data become available. This will include an analysis of uses, silvicultural recommendations, and a cutting plan for each stand budgeted for cutting, the access road system required, logging, T.S.I. and slash disposal methods to be used, planting surveys and planting programs to follow if needed, and measures to apply in special problem areas.

- e. Allowable Cut: Several regulatory methods were considered and used in setting the cut for the working circle. These were the Austrian, Hanzlik, Von Mantel and Kemp formulas and the Tabular Check method. (See Appendix Tables 23 to 27.) The several methods exhibited rather close agreement in allowable annual cuts, as may be seen from Table 9 which follows, with all results falling between 46 and 50 million board feet (Scrib. C).

The Tabular Check method indicated that a cut of 47 million board feet conformed best with the growing stock in the working circle, and produced an average rotation close to ideal. Accordingly, a cut of 47 million board feet of sawtimber and 31 thousand cubic feet of other material is recommended as annual cuts for the next ten years--this volume to be taken from approximately 3,540 acres of final harvest cuttings.

Regulation will apply primarily to areas of major type groups as shown in Table 10. Cut of such areas should yield volumes approximating the calculated cut by formula.

Area regulation methods show rather wide variations in allowable cut. Strict area regulation would call for cutting about 3,450 acres annually. This is close to the area designated for cutting of 3,525 acres annually during the next 43 years, according to the Tabular

Table 9

ALLOWABLE ANNUAL CUT OF SAWTIMBER AND OTHER PRODUCTS FROM
FINAL HARVEST CUTTINGS ON NATIONAL FOREST LANDS

Regulatory Method	Sawtimber	Other Products		Annual Cutting Area
	MM bd.ft.	M cu.ft.	or Cords	Acres
Von Mantel	48.8	3,183	35,360	(not est.)
Kemp	46.8	3,100	34,439	4,269
Austrian	46.3	(not est.)	(not est.)	(not est.)
Hanzlik	50.4	(not est.)	(not est.)	(not est.)
Tabular Check	47.0	(not est.)	(not est.)	3,525

Check method. It is less close to that indicated by the Kemp formula; however, since acquisition of well-balanced age classes is a major plan objective, the cutting of approximately 3,500 acres annually is very desirable. It can be readily matched with the 47 million allowable cut of sawtimber by proper choice of cutting areas.

The regulated volume of other products indicated in Table 10 as 34 M cords pertains to the removal of material below sawtimber size or quality. Utilization of this material usually is urgent since it helps to prepare sites for full stand regeneration. Accordingly, harvest of other products will be a timber sale requirement whenever utilization has proven economically feasible on similar areas.

The aforementioned cuts do not consider volumes that might be harvested as intermediate cuttings. Few such cuttings have been made to date in this working circle; however, there are strong indications that markets for small-size products will develop and sales can be made for this class of material in the future. It is desirable, therefore, to establish cutting objectives from immature stands at this time.

Appendix Table 28 shows areas of dense young stands that should be treated annually--also volumes that may be removed in such cuttings. Areas to be cut over will be stressed rather than volumes to be obtained. This volume of small material is in addition to that which can be removed in reproduction or final harvest cuttings. No reduction in volume of final cuttings is anticipated as a result of these preliminary cuts.

For the present, the calculated allowable cuts in young stands should be considered as cutting objectives, rather than maximum allowances. A number of years probably will have to elapse before the full allow-

provided the total for a ten-year period is within 10% of the objective. Under-cuts may be accumulated by decades, or until the plan is revised, but liquidation of any accumulation will be subject to the 25% over-cut limitation.

An allowable cut of salvage products has not been determined, nor is regulation of these products planned. The perishable nature of this material makes it desirable to harvest it in unlimited quantities as rapidly as possible. Quantities available are shown in Table 7. The actual cut of all products may overrun the allowable cut of green growing stock to the extent that cull trees, tops, dead trees and other salvage material not included in the allowable cut calculations are utilized. A further addition will come from harvest of timber from the Coram Experimental Forest.

It is important to charge a cut volume against the right allowable cut category. A volume secured from a harvest cutting cannot be charged against the intermediate cutting allowance, or vice versa, nor can the size of material be ignored. Should any substantial amounts of sound sawtimber volume be harvested as poles, posts, pulpwood, etc., such volumes must be charged against the sawtimber allowable cut. A considerable volume of larch, lodgepole pine, spruce and subalpine fir is apt to be utilized in that way.

Cutting control applies to the working circle rather than to blocks or ranger districts. Since administrative control is by districts, apportionment of the total allowable annual cut to districts is according to the prevailing timber management needs in each (Table 10). Such apportionments and reapportionments are subject to periodic adjustments by the forest supervisor during the effective life of the plan.

Both the regulated and unregulated cuts can be increased through greater accessibility and application of more intensive forestry practices. Important gains can be realized by stimulating the growth of crop trees, capturing mortality, improving the stocking and keeping destructive agencies in check.

Stocking is poor or entirely absent on about 20 percent of the commercial forest area. It is over-dense on much of the remainder and does not produce the maximum annual increment. Under more intensive forest management and better age-class distribution, the allowable cut could approach and exceed the growth of a normal forest, which is about 65 million board feet.

The sustained cut from other ownerships is insignificant, being less than one million board feet. All of it would come from lands along the northern edge of the working circle north of Hungry Horse.

- f. Cutting Budget: The cutting budget is contained in the Current Action Plan for Working Circle (Appendix Table 30). It indicates the areas and volumes planned for sale. Appendix Map E shows the cutting areas in relation to access roads needed to tap the areas. The plan will

be revised annually to (1) keep it current, (2) maintain the allowable cut, and (3) obtain the desired silvicultural objectives. The annual sales program is coordinated with the five year plan. It is presented to prospective purchasers and other interested parties at an open meeting in March of each year.

7. SALES POLICY

- a. **Size of Sales:** Much development work is still required on the Coram working circle. Many compartments have no developments in them. With average to high road construction costs, long haul routes, and absence of any substantial volume of high value species such as white pine, it is necessary to make sales of such size as to amortize development costs. Other factors that will influence sale size are: (1) silvicultural objectives, (2) removal of salvage material, (3) volumes sufficient for a practical logging operation, and (4) needs of industry within the limits of the allowable cut. Short term sales which provide less risk will continue to be the rule. Insofar as possible the size of sales will vary to meet the needs of all classes of operators.
- b. **Point of Manufacture:** Timber resources of the working circle should be manufactured in the Flathead Valley to help stabilize local communities, but no restrictions will be placed on point of manufacture. Forest industry is well established in the Flathead Valley and is becoming more diversified with plywood plants and chippers being installed. It is possible, though not probable under present industrial development, that some material from the Middle Fork of the Flathead River could be hauled east on Highway #2 to the east side of the continental divide.

Virtually all the forest products taken from this working circle are hauled to the main Flathead Valley for manufacture at this time.

- c. **Merchantability Specifications:** Factors governing standards of utilization of merchantable material are included in FSH 2411.32. The long range policy is to secure maximum utilization of forest products possible under current market conditions, distances to market and other economic factors. The gauge of merchantability will continue to be size and type of forest product which can be removed by an efficient operator at a reasonable profit. Any product which will not return a reasonable profit will not be logged unless necessary for silvicultural reasons.

Sawlogs compose over 95 percent of the timber products removed from the working circle. Lumber is the principle end product but with the installation of the plywood plants it is expected that some of the material will go as peeler logs.

Removal of nonmerchantable material from sale areas will be optional with the purchaser.

Stumps shall be cut to cause the least practicable waste. Sale contracts will limit stump heights to 14 inches or less, with few exceptions. The standard trim allowance will be 6 inches per 16 foot or shorter log. Merchantability specifications for products other than sawlogs will vary depending upon the products sold.

- d. Logging Methods: Logging methods will be limited to those which fulfill the conditions of Regulation S-2 and meet the objectives defined in the timber sale contract. Horse, jammer and tractor (without dozer blade attached) logging are generally the only methods which will be approved in stands to be partially cut. Other methods may be permitted in clear-cut areas or where experience has proven them acceptable. Restrictions in logging methods or type of equipment to meet conditions of Regulation S-2 and sale objectives on areas such as erodible soils, steep slopes, pole stands, municipal watersheds and recreation areas shall be added to the contract prior to advertisement. Such restrictions shall be clearly outlined in the sale prospectus.

8. FOREST DEVELOPMENT

a. Transportation

- (1) Present System: The main line of the Great Northern Railroad follows the northern boundary of the working circle. It has sidings at Summit, Essex, Nyack, West Glacier, Coram and Columbia Falls. A spur line extends south to Somers. The principal highway is U. S. Highway No. 2, an east-west highway which parallels the railroad along the northern boundary of the working circle.

An access road is located on each side of the Hungry Horse Reservoir. These roads provide the main road system for the South Fork of the Flathead River area.

A double lane paved highway leaves Highway #2 at Hungry Horse and goes to the Hungry Horse Dam, a distance of four miles. From the Dam, the West Side Road #895 follows the west side of Hungry Horse Reservoir and joins the East Side Road #38 just north of Spotted Bear.

East Side Road #38 leaves Highway #2 at Martin City and follows the east side of Hungry Horse Reservoir and the South Fork River to Spotted Bear.

Highway #2 will serve as the main haul route in the Middle Fork drainage.

From this main skeleton, roads (proposed and existing) take off to serve individual compartments.

In addition to the roads, some logs are placed in the Hungry Horse Reservoir and towed from the upper end to the lower end, or

approximately 30 miles. They are removed from the lower end of the reservoir and hauled by truck to the mills.

- (2) Utilization Road Needs: The most important transportation need is completion of main haul roads to acceptable standards and the full development of the rest of the interior road system. The current Transportation Plan dated June 30, 1960, indicated the following existing and planned miles of roads for the working circle.

Table 11

MILES OF SYSTEM ROAD FROM TRANSPORTATION PLAN

	<u>NON-EXISTING</u>		<u>EXISTING</u>		
		Primitive	Graded & Drained	Graveled	Paved
Coram Block	584.6	30.9	68.3	52.7	3.8
Spotted Bear Block	370.1	2.2	16.0	--	--
Hungry Horse Block	299.4	30.7	64.2	43.2	4.0
	1,254.1	63.8	148.5	95.9	7.8

Existing and planned roads total 1570.1 miles.

- (3) Policy: The policy will be to construct access roads into each compartment to facilitate full multiple use management of the national forest lands and permit the management objectives--marketing, protection and silviculture--outlined in this plan.

The transportation plan with its periodic revisions will be the guide for designating roads to be retained for permanent use. All roads will be constructed in accordance with current instructions contained in the Region One Criteria for Forest Development Roads As Guides for Planning, Location, and Design.

Main roads which involve large investments should be constructed by appropriated funds insofar as possible. Other roads will be constructed by the timber sale operator.

- (4) Program: The Timber Access Road Plan indicates road and timber sale priorities. (See Appendix Table 35) The annual revision which provides for necessary adjustments in the program will be included as a part of this plan.

Because so much of the land within the working circle is Federally owned, few rights-of-way will be required. Where rights-of-way are needed they will be secured well in advance of planned sales or construction contracts.

b. Planting

- (1) Needs: The working circle has approximately 466,050 acres of

nonreserved commercial national forest land. Of this, approximately 5,705 acres are less than 10 percent stocked. Another 32,465 acres are poorly stocked seedling, sapling, and pole growing stock on which productivity is low. The major portion of both these categories must be planted or interplanted if productivity is to be bettered substantially within a reasonable time.

Some form of ground preparation or brush eradication is needed prior to planting. Machine planting is not possible on most areas because of steepness of slope and physical barriers such as stumps and fallen snags. Development of a cheap method of regeneration on such areas is needed. Increasing labor costs and the physical size of the hand job during the very short planting season makes it imperative that better methods be found to do this work.

Timber harvest operations are annually creating more acres in need of artificial regeneration. These areas must be watched very closely. If natural regeneration is not obtained within a reasonable time (before grass and brush competition make artificial regeneration not feasible without site preparation), steps must be taken to regenerate these areas artificially. At least some of this work can be accomplished through the K-V program. Understocked acreages were derived from photo interpretation and extensive ground survey. A much more intensive survey is needed before a realistic planting program can be planned. Such surveys will have to precede any planting or brush eradication work.

- (2) Policy: Regional policy will be followed for planting surveys and planting. Areas denuded by logging or fire will be entered in the planting plan if, after three years, natural restocking is unsatisfactory. Thereafter annual reproduction surveys of these areas will be made until they have become satisfactorily stocked with desirable species.

Planting financed from appropriated funds shall be carefully correlated with planting with K-V funds. Artificial regeneration will be completed on cut or burned areas before competition makes further site preparation necessary.

- (3) Program: The tentative planting program is shown in Appendix Table 31. The program is expected to expand as the planting surveys are completed on additional areas.

The four-year planting program will be revised annually to determine priorities and future planting stock requirements. The plan will be followed to the extent of available funds and suitable planting stock.

c. Timber Stand Improvement

The objective will be to improve the species composition, productiv-

ity, and quality of the forest products being grown on all commercial timberland consistent with the planned use of such land.

- (1) Need: No survey or analysis has ever been made on this working circle to determine the amount of work which is economically justified to increase production. Undoubtedly the acreage would be high. Much of this area is outside commercial timber sale areas, and the work would require appropriated funds. Virtually every size and age class of immature timber stands produces less than it could because of the lack of T.S.I. measures.

(a) Sawtimber Stands: Approximately 3,540 acres of mature and overmature timber stands and 3,300 acres of immature stands are scheduled for cutting each year. The residual understory is usually removed from clear-cut areas to prepare them for regeneration and artificial regeneration often must follow. Present T.S.I. progress is dependent upon the acreage cut over for which K-V funds are collected. Funds for only the most urgently needed work have generally been collected, and rarely has a thorough job been done on the entire sale. Future collections will have to be increased if management objectives are to be attained. Trouble has been experienced on very steep north slopes. Because of the steepness, conventional machines cannot be worked. Burning techniques have not been developed to the place where these can be burned safely.

(b) Immature Stands: Many of these stands are overstocked to the point of stagnation. Improvement measures in these timber stands will consist of a reduction in the number of stems. Other immature stands may be understocked and in need of restocking measures. This work might be accomplished by the sale of intermediate cuttings in some stands. In other instances where the work is equally necessary, the sale of products will not defray the costs and the work must be financed otherwise.

- (2) Policy: All stand improvement work will be performed in accordance with instructions stated in the Forest Service Manual 2470, Forest Service Handbook 2470, and Planting and Stand Improvement Handbook. On timber sale areas, part of the stumpage payments will be deposited as stand improvement funds in accordance with the K-V Act to insure re-establishment of a desirable stand so far as possible.

Larch, spruce, Douglas-fir and ponderosa pine are species that will be favored over other associates. Suitability of the species for the site will be the determining factor in favoring one species over another in all T.S.I. work on a particular site. Lodgepole pine, alpine fir, whitebark pine, cedar, hemlock and grand fir will not be favored at any time over other species. White pine will not be favored unless and until treatment by the antibiotics is feasible. These latter species may have to be grown on certain areas for want of favorable species.

- (3) Program: The T.S.I. program is geared to funds available. Practically all these funds at the present time are limited to K-V collections. In the clearcut areas the stand improvement work will consist of weeding, scarification, prescribed burning and seeding or planting as necessary. In seedling, sapling or pole stands of desirable species which make up the understory of cut units, at least pilot thinning areas will be established.

The work with the K-V collections will be completed as soon as practical after cutting to insure rapid regeneration, except in problem areas where need for subsequent thinning or planting is anticipated. When the necessary funds become available, seedling and sapling stands will be treated to improve species composition and stocking.

As market conditions warrant, cutting in immature stands will be started to improve stand condition through thinning, sanitation, and salvage cutting. T.S.I. work will generally be provided for in our sales program.

d. Insect Control

- (1) Problem: Scattered and sporadic insect activity occurs throughout the working circle with major outbreaks a constant threat. The mountain pine beetle (Dendroctonus monticolae) is endemic in the working circle at present. About 1926 or 1927 an epidemic of these insects killed a large volume of white pine in Wounded Buck Creek and probably other nearby drainages. It is a constant threat to the mature and overmature white pine and lodgepole pine.

The Douglas-fir beetle (Dendroctonus pseudotsugae) is ever present in endemic proportions. Individual and small groups of Douglas-fir trees are constantly being killed over the working circle, causing a cumulative annual drain of serious proportions. The beetles are distributed over the working circle and at present are very evident on the Coram block in the vicinity of the Experimental Forest.

Engelmann spruce beetle (Dendroctonus engelmanni) emerged in epidemic proportions in some drainages of the working circle in 1952. This epidemic had its beginning in November 1949. A wind of hurricane proportions swept over this section of the state and blew down spruce trees over a wide area. Absence of access roads prevented prompt salvage. The windthrown spruce proved to be a breeding ground for the spruce bark beetle, and the insect multiplied rapidly.

Logging was determined to be the only feasible method of control. Roads were constructed into a number of areas and logging control work started. Within two years logging and natural control had reduced the infestation to endemic proportions.

Millions of board feet of windthrown, infested, and salvage spruce were removed during the spruce bark beetle control program. Many more millions of board feet deteriorated beyond the point of salvage before the access road system could be constructed. The Bunker Creek drainage in the Spotted Bear block was hard hit. However, because of the inaccessibility and opposition from recreation users, this was not salvaged. An estimated one third of the mature spruce in this drainage was lost.

- (2) Policy: Insect losses will be kept to a practical minimum by silvicultural methods and timber sales practices directed toward keeping timber stands in a thrifty condition. Early detection and prompt reporting of forest insect outbreaks, and prompt application of the most effective and practicable prevention and suppression measures known will be practiced.
- (3) Program:
 - (a) The Current Action Plan will have as its main objective to harvest mature and overmature timber stands in an orderly manner and in accordance with the management plan. This will result in a network of access roads which will enhance prompt insect control programs.
 - (b) All timber sale contracts will provide clauses for removal of high-risk and infested trees not designated for clearcutting.
 - (c) Slash disposal and stand improvement work will be conducted to keep insect problems at a minimum.
 - (d) Forest personnel will be trained to recognize insect infestations.
 - (e) An active reconnaissance for insect buildups will be conducted annually to fill the requirements of the annual insect report.
 - (f) Current sale programs will be modified as necessary to achieve control of infestations or to salvage insect infested timber.
 - (g) Positive action for direct control will be taken as deemed necessary.

e. Disease Control

- (1) The Problem: White pine blister rust (Cronartium ribicola) is active in the five needle pines in this working circle. Since this area is on the extreme eastern edge of the white pine type and out of the blister rust control zone, regeneration of the white pines will not be encouraged.

The commandra, lodgepole and hip cankers (Cronartium commandrae, Peridermium stalactiforme, Peridermium harknessii) are three known rust diseases in the lodgepole pine stand in the working circle. No thorough survey has been made to appraise accurately the prevalence of these diseases and damage caused by them.

Larch needle cast (Hypodermella laricis) has been a common disease on western larch in this working circle. Its intensity varies greatly from year to year and from stand to stand. It does not appear to be a serious threat, and control is not contemplated.

The Douglas-fir needle cast (Rhabdocline pseudotsugae) has been prevalent in this area off and on in the past. The disease is not causing serious losses in this working circle. There are but few areas here which are capable of growing good Christmas tree stock; therefore, loss to the Christmas tree industry is small.

Losses from decay due to fungus diseases are considerable in over mature sawtimber stands. Such fungi prevalent on the working circle are Fomes pini, Echinodontium tinctorum, Polyporus schweinitzii, Fomes laricis, and Fomes pinicola. Little can be done directly to control these wood-rotting diseases. Relatively short rotations planned for future timber removal and more rapid removal of defective trees through intensified forest practices will reduce losses from these diseases.

Armillaria mellea and Poria werii root rots are killers in several species and age classes. Spreading through the ground from dead to green material, they attack, weaken and kill adjacent green trees. No practical preventative or control measure exists, and salvage of dead and dying trees is made difficult by the constant and scattered nature of the losses.

Dwarfmistletoes (Arceuthobium spp.) are present in localized spots in this working circle. Infestations have been found in larch, Douglas-fir and lodgepole pine. Damage from this source to date has apparently been minor except in localized areas. Without definite control measures, the diseases can be expected to increase in the future. Clearcutting operations, with a minimum of reproduction exposed to infected trees around the edge of the cuttings are musts if the disease is to be controlled.

- (2) Policy: The policy will be to exercise vigilance for disease occurrence so that outbreaks are quickly detected. Surveys for

existing diseases will be made periodically to determine their extent, intensity and trends. The most suitable silvicultural practices will be used to control each disease. Funds for disease control will be requested where effective control measures exist. As much of the infected timber as possible will be salvaged, whether or not feasible disease control methods are known. (Reference FSM 2483.2.)

- (3) Program: Planned sale program will be modified as necessary to control the spread of tree diseases. The sale of diseased timber will be given priority. (Reference FSM 2483.2.)

f. Fire Control

- (1) Causes and Losses: Records reveal that most of the burned area in the past occurred in a few bad fire years. Weather conditions and inaccessibility were the primary reasons for the fires becoming so large during those years. In the meantime, accessibility has greatly improved, especially during the past ten years; and equipment, techniques, and organization are much more adequate to cope with the fire potential.

Table 12

FIRE LOSSES BY PERIODS

NONRESERVED AREA

Periods Inclusive	1931-1940	1941-1950	1951-1960
Total Fires	414	176	203
Man Caused Fires	67	40	74
Acres Burned			
Man Caused	271	87	63
All Fires	1,579	342	179
Annual Loss			
Acres	158	34	18
Percent of Area	0.02	0.005	0.002
<u>RESERVED AREA (Bob Marshall Wilderness)</u>			
Total Fires	251	112	83
Man Caused Fires	7	6	12
Acres Burned			
Man Caused	13	6	360
All Fires	3,533	73	614

(2) Policy and Objectives: The objective in fire control will be to meet regional fire control standards for prevention, presuppression and suppression (FSM 5101). This includes burned area and other "par" limitations.

(3) Program: In addition to regular planning for fire control, a fire plan will be prepared for each active timber sale within the working circle. This plan will be prepared in cooperation with the operator so both parties will understand what their responsibilities are in the fire control job.

Fire control and slash disposal plans will be coordinated to insure adequate protection of all areas, and to reduce hazards to planned levels.

Prevention guards will be used during the fire season to keep the public informed of the fire danger and aware of the need for fire prevention.

Fire protection is now provided by a system of lookouts supplemented by use of aerial patrols. The manning of lookouts and the intensity and frequency of aerial patrols is governed by fire weather conditions.

(4) Slash Disposal: The objective in slash disposal will be to reduce the fire hazard to a medium medium class. The method of disposal will depend on the terrain, the concentration of slash, the rapidity of natural abatement and desired results. Methods of treatment used include machine piling and burning, prescribed burning, hand piling and burning, lopping and scattering and additional protection in lieu of disposal. Timber sale contracts provide for the felling of snags and fire-dangerous trees, and the building of fire lanes around clearcut area by the purchaser.

(5) Silvicultural Tool: Fire is a recognized silvicultural tool, and will be employed whenever conditions are favorable for its use. Slash created by clearcutting methods is well adapted to the use of fire for both hazard reduction and site preparation for either natural or artificial regeneration. Stagnated non-commercial stands and brush fields can be prepared for regeneration by prescribed burning.

We have not fully employed the techniques of prescribed burning on very difficult areas such as steep slopes. This becomes more important as cutting progresses toward the steeper terrain in the working circle. The slash will have to be disposed of, brush and undesirable trees eliminated and the area left in a receptive condition for natural or artificial regeneration. There are a number of areas of this difficult ground in the working circle. Techniques will have to be developed to dispose of slash on these areas.

- g. Acquisition and Exchange: The ownership pattern in this working circle is about 97.6% of the total area in national forest ownership. The long term objective is to continue to consolidate national forest lands within the working circle through land exchange procedures. Consolidation through purchase is not anticipated.

Consolidation of ownerships would be to the advantage of the Government, particularly in the Middle Fork drainage. All opportunities to consolidate national forest ownership will be taken advantage of.

- h. Reservoir Withdrawals: The Hungry Horse Reservoir and adjacent administrative sites, containing 25,295 acres, was withdrawn from national forest use by the Bureau of Reclamation in 1947. The dam has been completed and the flowage area flooded. The Bureau of Reclamation has continued the withdrawal on the land in the vicinity of the dam, Government town and a 200 foot horizontal strip above high water mark around the reservoir. Receipts from timber sales within this strip are credited to the Bureau. To date only one small salvage sale has been made partially on these withdrawn lands. Future plans provide for many more sales within this area.

In 1956, 24,000 acres of national forest land were withdrawn for reclamation purposes on the Middle Fork for the Spruce Park Dam. Of this, 2,600 acres will be inundated when the dam is built.

This project also contemplates a 37,000 foot tunnel from the Middle Fork to the South Fork of the Flathead River in the vicinity of Hoke Creek. The proposed power plant would be constructed on the Hoke Creek location. This location is covered by the withdrawal for the Hungry Horse project.

If the Spruce Park Dam is built, it will hasten the road development on the Middle Fork unit.

i. Inventory

- (1) General: The inventory data has been compiled by use of aerial photos taken in 1954 and 1955. Delineation of timber types on the photos was accomplished in 1958 and 1959. Field sampling and establishment of permanent inventory and growth plots was done during 1958 and 1959.
- (2) Policy: To currently inventory or revise previous inventories of sufficient volume to keep at least three years ahead of the timber sale program. Make use of timber management planning type maps and volume data for sales planning insofar as possible.
- (3) Program:
 - (a) Correlate cruise information with aerial photographs to reduce the cost of securing basic data for timber sale purposes.

(b) Currently make corrections on type maps prepared from aerial photos. Indicate cutover areas, verification or correction of types, roads and other developments.

(c) Each year compare actual cut with the allowable cut and analyze differences to guide to future cutting levels. Maintain standard control records as required by FSM 2445.

j. Research

(1) General: The Coram Experimental Forest of 7,000 acres is located in the Coram Block. This is maintained by the Intermountain Forest and Range Experiment Station to study the larch--Douglas-fir type. It includes a natural area. Results of studies here may be readily applied to similar conditions throughout the working circle.

Research is needed on the techniques of prescribed burning on very difficult areas, such as very steep north slopes. Due to steepness these areas cannot be worked with machines; because of their exposure they will not burn until other exposures in the same area are too dangerous to burn.

In addition, we need information on stocking standards, stand structure to provide suitable growing stock. We need much information on the relative potential of various species on these sites: which species is best to grow on the basis of biological adaptability, marketability, etc.; what are some relatively inexpensive ways of getting at least a few of the stands under some form of management even if it is extensive.

(2) Policy: It will be the policy to cooperate fully with all research agencies in any research work which may contribute to the knowledge and understanding of the principle timber types of this area and related problems.

(3) Program: Encourage cooperative field investigation and experiments to solve problems in management pertaining to silviculture, pathology, entomology and forest influences.

k. Administrative Studies: No administrative studies will be undertaken until cleared with the regional forester and Research. Approved studies will be undertaken as needed, installed, documented, and followed to conclusion.

Demonstration areas will be established and adequately signed to keep the public informed of management practices, methods, results and the multiple-use aspects of timber management activities.

l. Compartment Planning: This planning is more detailed than that for the working circle plan and is a continuing process. Overall plans for full development of each compartment should be completed to the extent that funds are available. This work should include checking and correction of type, designations and areas on base maps, road development, timber stand improvement needs, planting needs, priority of cutting, and coordination of water, recreation and wildlife with timber management for maximum benefits from the area.

9. COOPERATION

a. With Federal Agencies

- (1) Bureau of Reclamation: Close cooperation with the Bureau of Reclamation is necessary. The Bureau has withdrawals on the lands around the Hungry Horse Dam, the administrative area for the dam, on a 200 foot strip around the Hungry Horse Reservoir, lands at Hoke Creek and in the Middle Fork at the site of the proposed Spruce Park Dam. They administer the land that some Forest Service buildings now occupy, and maintenance of the Government town is now a joint undertaking. The Forest Service administers the recreation and other uses, except reclamation uses, on the lands controlled by the Bureau. Any collections are credited to the Bureau.
- (2) Glacier National Park: Close cooperation with the National Park Service is essential because of its geographical location. The working circle is immediately adjacent to the south boundary of Glacier National Park. It is separated by the Middle Fork of the Flathead River south to Jav a and by Bear Creek to Summit. To date cooperation has been close and relationships very cordial. The importance of close cooperation during the fire season is obvious since prevailing southwest winds could carry a fire originating on the working circle into the park. Past fires have proven the river an ineffective barrier to wind driven fires.

Highway #2 parallels the Forest and Park boundary on the Middle Fork. It has been designated as a Park approach highway. The coming need for intensive development of recreation facilities and improvements along this scenic route is obvious. Close cooperation with the Park Service will be necessary to keep pace with this problem.

- (3) Other Federal Agencies: Continuing cooperation with the following agencies is essential: Bureau of Land Management, Fish and Wildlife Service, Geological Survey, Army Engineers, Rural Electrification Service, Bonneville Power, Bureau of Public Roads, and other agencies which may develop interests influencing the use of this area.

b. With State Agencies

Coordinate activities with the appropriate state agency conducting work within the working circle, such as the State Forestry Department and the Fish and Game Department.

c. With Private Organizations

- (1) Cooperate with local sportsmen's organizations and inform them of our programs and activities.

- (2) Cooperate with recreational organizations by coordinating the timber and recreation program.
- (3) Cooperate with local Chambers of Commerce and interested citizens on access road programs, and in creating and sustaining local industry.
- (4) Acquaint interested parties with Forest Service plans, practices, and policies.

SUPPORTING DATA

1. HISTORY

The area comprising the Coram Working Circle was used by the Indians mainly for its routes of travel from the Flathead Valley to the eastern slopes of the Rocky Mountains.

A few hardy trappers and prospectors explored the primitive areas of the South Fork and Middle Fork during the nineteenth century and early 1900s. Many of their log cabins are still found today.

Development and settlement of this working circle has followed the construction of the following:

1891- The Great Northern Railroad was built through the Marias Pass and down the Middle Fork to Kalispell. John L. Stevens is given credit for locating the true Marias Pass in 1889.

The construction town of McCarthyville flourished in 1891 near present-day Bear Creek, but its location is now nearly forgotten.

The permanent communities of Coram, Belton, Nyack, and Essex resulted from railroad construction and maintenance activities.

1926- A low standard road up the South Fork River to Spotted Bear was completed.

1931- U. S. Highway #2 was completed through the Middle Fork route.

1947-1953- Construction of Hungry Horse Dam.

1952- The main haul road #38 was completed on the east side of Hungry Horse Reservoir.

1954- The main haul road #895 was completed on the west side of Hungry Horse Reservoir. Roads #38 and #895 were instrumental in making development possible for the many miles of road up the side drainages of the South Fork.

In 1897, President Cleveland, by proclamation, set aside a vast area to be known as the Lewis and Clark Forest Reserve. This original reservation included all of the present Flathead National Forest south of Glacier National Park and east of the main Flathead River. The former Blackfoot National Forest and Glacier National Park formed another unit known as the Flathead Forest Reserve, with headquarters at Ovando, Montana. In 1903, the Flathead and Lewis and Clark Reserves were consolidated into one unit under the latter name. In March, 1907, the name "Forest Reserve" was changed to "National Forest." The area proved too large to be successfully handled as one unit, and in 1908 the Lewis and Clark National Forest was divided

into two forests, the Blackfoot and the Flathead.

In 1910 Glacier National Park was withdrawn from the Flathead National Forest.

From 1908 to 1933 the present working circle was composed of various "districts" or divisions which were changed many times. Among these were the Coram, Essex, Schafer, Spotted Bear and Big Prairie Districts.

In 1933 the Blackfoot and Flathead Forests were consolidated, 62% of the Blackfoot being added to the Flathead, the other 38% going to the Kootenai National Forest.

About the only major change in boundaries from 1933 to 1957 was the consolidation of the Schafer District with the Spotted Bear District.

In February, 1958, the Hungry Horse District was created on the west side of Hungry Horse Reservoir. The Coram Working Circle is presently made up of the four districts - Coram, Hungry Horse, Spotted Bear and Big Prairie.

Catastrophic Fires

The Coram Working Circle has had a history of large burns. A report by H. B. Ayres in 1901, "The Lewis and Clarke Forest Reserve", mentions the large areas burned in the Middle Fork twelve years previously and also a large area in the South Fork.

Other historic burns include

- 1903 - Crossover Mountain burn
- 1910 - Schafer or Upper Middle Fork burn, Crossover Mountain burn, Lost Johnny to Middle Fork burn
- 1919 - Sheep Creek to Long Creek burn, Sullivan Creek burn
- 1926 - Lost Johnny to Middle Fork burn
- 1929 - Halfmoon Fire, Soldier Creek burn

Timber Harvest

Past cutting has fluctuated greatly, reflecting economic business cycles. Through 1959 a total of 387,957 M feet is recorded. Prior to 1908 incomplete records show eight small sales of cordwood, fence posts, and house logs, to settlers along the Great Northern Railway up the Middle Fork of the Flathead.

The 1910 records show a cut of 1,058 M feet of sawtimber with a total cut of 1,350 M feet, all on the Middle Fork block.

Cutting increased rapidly to a peak cut of 13,077 M feet in 1917 and then dropped to 5,070 M feet in 1920. A report at that time states, "The area around Belton and Coram, adjacent to the Great Northern Railway and the river in Townships 30 and 31 North, Range 19 West,

has been cut over several times for logs, ties, poles, and finally for dead poles and cordwood. At present these lands are practically clear cut of merchantable timber and support only a partial stand of reproduction."

By 1922 the cut was down to 1,625 M feet, dropping to 190 M feet in 1926. In 1932 only 65 M feet of forest products were cut under commercial sales, although a total of 1,318 M feet were cut, primarily for administrative use.

The total cut through 1933 was 99,340 M feet. The annual cut was low during the period 1930-1940. During the period 1940-1959, 288,617 M feet were cut from national forest lands in the Coram Working Circle, exclusive of the volume removed from the Hungry Horse Reservoir area.

2. PHYSIOGRAPHY

a. Topography: Glaciated origin, characterized by the main U-shaped valleys lying between steep, rocky, parallel ridges typifies the area. Elevations range from 3,100 up to 8,700 feet.

In the South Fork drainage, bottom and bench lands slope gradually from the river or reservoir for from one to two miles. Slopes then change abruptly and rise rapidly to the main divide. In the Middle Fork drainage, slopes are much steeper from where the valley bottom lands merge with the toe of the northeast slopes.

Main tributary streams average about 14 miles in length. They generally parallel each other. These side streams are much steeper in gradient with narrow bottoms and steep side slopes.

b. Soils: Shallow soils overlying glaciated outwash characterize this locality. Along ridge tops soils are shallow and rocky. Permeability is good on most of the area. Texture is generally a silty loam except in localized areas of heavy clay. Structure is fair except in areas of repeated burns.

c. Climate: Normal annual precipitation ranges from 30 to 35 inches in the area; however, localized areas may average from 15 inches to 60 inches. Most of the moisture comes in the form of snow during the late fall and winter. Rainfall is heaviest during the month of June.

Mean annual temperature is 42 degrees. Minimum temperatures of minus 50 degrees F. have been experienced. Maximum temperatures have reached plus 104 degrees F. Monthly mean temperature ranges from 22 degrees in January to 66 degrees in July.

Prevailing winds are generally from the southwest. Growing season is from about May 15 to September 1. The month of May is characteristically dry, followed by a wet June. July, August, and September are usually the driest months of the year.

3. ECONOMY

a. Communities: The population within the working circle is about 1,500. The recognized communities within the working circle are Coram, Martin City, Hungry Horse, West Glacier (Belton), Essex, Nyack and Pinnacle. Communities that are partially dependent upon employment in the processing of forest resources of the working circle are:

Table 13

Community	1940 Population	1950 Population	1960 Population
Coram	200 ^{1/}	500 ^{2/}	300 ^{2/}
Martin City	0	1,000	300 ^{2/}
Hungry Horse	0	1,335 ^{3/}	300 ^{2/}
Columbia Falls	637 ^{1/}	1,232 ^{3/}	2,500 ^{2/}
Kalispell	8,245 ^{1/}	9,737 ^{3/}	10,151 ^{4/}
Flathead County			32,965 ^{4/}

b. Industries: Forest industries of the area contribute substantially to the local economy. This fact is brought out forcibly by any slump in the lumber market. When the lumber industry is experiencing bad market conditions, the local economy also follows the declining trend. The final product of the industry is lumber and plywood. These products are shipped out for construction and re-manufacturing. Loss of potential man-hours of work through lack of secondary manufacture aggravates the employment situation of the area.

When and to what extent the timber industry will integrate in this area is difficult to determine. The distance to centers of population and unfavorable freight rates are detriments to industrial expansion. Secondary manufacturing, utilization of established industrial waste, and cubic volume of available timber thinnings are all potential sources for an expanded wood-using economy. There are trends in the overall forest industries of the nation together with

^{1/} 1940 census.

^{2/} Estimated.

^{3/} 1950 census.

^{4/} 1960 census.

expected demand which indicates we can expect eventual integration and expansion of wood fiber using industries in the Flathead Valley.

In the past several years, three new plywood plants and a post treating plant have been established in the valley. Chippers have been installed at several of the plants in the Flathead Valley. The chips are being hauled or shipped to the pulp plant at Missoula. An increase in the number of chippers can be expected.

These new uses all contribute to better forest utilization and stability of employment. As opportunities present themselves we should encourage extension of integrated plants in the area.

The annual allowable cut for the Flathead National Forest is 139 MM. The breakdown by working circles is as follows:

Table 14

ALLOWABLE CUT^{1/}

Working Circle	Sawtimber	Other Products
	11" + dbh	Less than 11" dbh
	<u>Mm bd.ft.</u>	<u>M cords</u>
Glacier View	29.1	15.6
Kalispell	31.5	44.5
Swan	26.2	23.5
Coram	51.7	44.7
Total	138.5	128.3

The headsaw capacity within and adjacent to the Flathead Valley is 300 MM. This annual cut is made up from 30 plants with stable productions and another 30 plants with periodic productions, depending on market conditions.

^{1/}Includes intermediate cuts in sawtimber and other products.

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APPENDIX

CORAM WORKING CIRCLE

TIMBER MANAGEMENT PLAN



TOTAL LAND AREA BY OWNERSHIP

Appendix Table 1

Coram Working Circle

Block and Working Circle	Total Land Area	National Forest			State Acres	Other Public	Forest Industry	Other Private
		Total	Nonreserved	Reserved				
Coram 1/	337,236	321,896	321,062	834	377	1,628	491	12,844
Spotted Bear	538,928	538,928	249,394	289,534	-	-	-	-
Big Prairie	419,908	419,908	-	419,908	-	-	-	-
Hungry Horse	186,579	182,825	182,825	-	-	1,639	-	2,115
TOTAL WORKING CIRCLE	1,482,651	1,463,557	753,281	710,276	377	3,267	491	14,959

1/ Includes Coram Experimental Forest

TOTAL LAND AREA BY MAJOR LAND CLASSES

Appendix Table 2

Coram Working Circle

Block and Working Circle	Total Acres	Nonforest Land (Acres)	Forest Land (Acres)			
			Total	Non- commer- cial	Commercial	Non- stocked
Coram Block						
National Forest Nonreserved	314,551	16,137	298,414	121,854	176,560	1,450
Coram Experimental Forest	6,511	20	6,491	50	6,441	55
Coram Natural Area	834	-	834	-	834	-
State	377	60	317	-	317	-
Other Public	1,628	5	1,623	10	1,613	-
Forest Industry	491	95	396	-	396	-
Other Private	12,844	3,264	9,580	234	9,346	20
Total Coram Block	337,236	19,581	317,655	122,148	195,507	1,525
Spotted Bear Block						
National Forest Nonreserved	249,394	2,195	247,199	79,823	167,376	1,320
National Forest Reserved	289,534	970	288,564	139,054	149,510	2,650
Total Spotted Bear Block	538,928	3,165	535,763	218,877	316,886	3,970
Big Prairie Block						
National Forest Reserved	419,908	5,660	414,248	196,075	218,173	2,485
Total Big Prairie Block	419,908	5,660	414,248	196,075	218,173	2,485
Hungry Horse Block						
National Forest Nonreserved	182,825	11,768	171,057	48,943	122,114	2,935
Other Public	1,639	695	944	30	914	-
Other Private	2,115	595	1,520	195	1,325	-
Total Hungry Horse Block	186,579	13,058	173,521	49,168	124,353	2,935

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Appendix Table 2 (continued)

Block and Working Circle	Total Acres	Nonforest Land (Acres)	Forest Land (Acres)			
			Total	Non-commercial	Commercial	
					Total	Non-stocked
Coram Working Circle						
National Forest Nonreserved	746,770	30,100	716,670	250,620	466,050	5,705
National Forest Reserved	709,442	6,630	702,812	335,129	367,683	5,135
Coram Experimental Forest	6,511	20	6,491	50	6,441	55
Coram Natural Area	834	-	834	-	834	-
State	377	60	317	-	317	-
Other Public	3,267	700	2,567	40	2,527	-
Forest Industry	491	95	396	-	396	-
Other Private	14,959	3,859	11,100	429	10,671	20
TOTAL WORKING CIRCLE	1,482,651	41,464	1,441,187	586,268	854,919	10,915
					844,004	

COMMERCIAL FOREST LAND BY TYPE, STAND-SIZE CLASS, AND STOCKING
(Nonreserved National Forest Land)

Appendix Table 3

Coram Working Circle

Block and Working Circle	Forest Type	Sawtimber			Poletimber			Seedling and Sapling			Non-stock-ed		
		Total Area	Stocking			Total	Stocking			Total			
			Well	Med.	Poor		Well	Med.	Poor				
Acres													
Coram Block	WP	140	120	10	90	20	20	-	-	-	-	-	
	L	56,571	36,726	9,747	12,325	14,654	4,601	3,226	1,130	14,654	585	590	
	D	19,915	8,335	225	5,005	3,105	6,160	3,380	2,480	5,395	1,145	25	
	S	33,002	29,627	3,450	14,877	11,300	1,610	475	845	1,325	600	440	
	LP	49,387	Included in Poletimber				29,230	19,230	7,220	19,832	15	3,370	
	AF	7,520	2,585	65	535	1,985	1,750	-	1,300	3,115	110	325	
	WLP	9,755	2,630	30	1,320	1,280	5,740	1,845	3,495	1,385	1,110	70	
	Co-A	270	190	25	85	80	65	30	25	15	645	-	
Total		176,560	80,213	13,552	34,237	32,424	49,176	28,186	16,495	45,721	7,880	1,450	
Spotted Bear Block	P	785	785	-	580	205	-	-	-	-	-	-	
	L	18,984	17,924	1,895	11,904	4,125	410	400	-	645	130	110	
	D	29,129	18,759	2,980	11,204	4,575	7,835	4,070	2,920	2,380	865	450	
	S	20,310	17,680	555	11,670	5,455	1,290	355	620	860	-	590	
	LP	67,298	Included in Poletimber				39,003	27,178	9,580	28,295	13,270	2,675	
	AF	16,790	4,170	80	1,320	2,770	2,980	185	1,620	9,120	90	5,180	
	WLP	14,045	5,590	-	3,425	2,165	3,895	445	2,415	4,400	125	1,495	
	Co	35	35	-	15	20	-	-	-	-	-	-	
Total		167,376	64,943	5,510	40,118	19,315	55,413	32,633	17,155	45,700	14,480	10,500	1,320

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(Continued on next page)

Appendix Table 3 (continued)

Block and Working Circle	Forest Type	Sawtimber				Poletimber				Seedling and Sapling				Non-stock-ed
		Total		Stocking		Total		Stocking		Total		Stocking		
		Well	Med.	Poor	Well	Med.	Poor	Well	Med.	Poor	Well	Med.	Poor	
		Acres												
<u>Hungry Horse Block</u>	WP-P	785	700	-	340	360	85	10	75	-	-	-	-	-
	L	34,563	29,828	10,855	13,913	5,060	760	425	335	-	3,150	1,815	870	465
	D	17,945	11,683	985	6,425	4,273	4,542	2,457	1,450	635	1,640	695	600	345
	S	44,487	41,922	4,146	25,033	12,743	395	110	150	135	190	40	45	105
	LP	8,564	Included in Poletimber				2,425	1,455	760	210	6,124	1,240	4,699	185
	AF	9,860	6,275	550	3,050	2,675	1,835	490	950	395	1,740	35	750	955
	WLP	5,910	4,100	120	2,245	1,735	1,605	885	365	355	180	-	-	180
Total		122,114	94,508	16,656	51,006	26,846	11,647	5,832	4,085	1,730	13,024	3,825	6,964	2,235
<u>CORAM WORKING CIRCLE</u>	WP-P	1,710	1,605	10	1,010	585	105	10	75	20	-	-	-	-
	L	110,118	84,478	22,497	38,142	23,839	5,771	4,051	1,465	255	18,449	12,689	4,600	1,160
	D	66,989	38,777	4,190	22,634	11,953	18,537	9,907	6,850	1,780	9,415	3,725	3,750	1,940
	S	97,799	89,229	8,151	51,580	29,498	3,295	940	1,615	740	2,375	55	1,025	1,295
	LP	125,249	Included in Poletimber				70,658	47,863	17,560	5,235	54,251	25,432	22,589	6,230
	AF	34,170	13,030	695	4,905	7,430	6,565	675	3,870	2,020	13,975	235	5,710	8,030
	WLP	29,710	12,320	150	6,990	5,180	11,240	3,175	6,275	1,790	5,965	580	3,425	1,960
CoA	305	225	25	100	100	65	30	25	10	15	-	15	-	
TOTAL WORKING CIRCLE		466,050	239,664	35,718	125,361	78,585	116,236	66,651	37,735	11,850	104,445	42,716	41,114	20,615
														5,705

NET VOLUME (BOARD FEET) SAWTIMBER-SIZE TREES BY SPECIES AND OWNER
(In Pole and Sawtimber Stands - Stocked Nonreserved Commercial Forest)

Appendix Table 4

Coram Working Circle

Block and Working Circle	Owner	Stocked Com'l (Acres)	Total Volume (MBF)	Volume by Species - MBF						
				WP-P	L	D	S	IP-WLP	AF-GF WRC	Hdw.
<u>Coram Block</u>	National Forest	129,389	1,123,007	23,764	318,838	133,884	433,729	119,145	92,357	1,290
	State	312	3,771	461	1,458	502	965	183	202	-
	Other Public	1,613	13,831	473	7,046	3,804	1,239	868	401	-
	Other Private	4,565	27,431	402	7,034	3,218	7,010	7,042	1,515	1,210
<u>Total</u>		135,879	1,168,040	25,100	334,376	141,408	442,943	127,238	94,475	2,500
<u>Spotted Bear Block</u>	National Forest	120,356	870,353	17,918	192,029	155,765	279,214	150,990	74,242	195
<u>Total</u>		120,356	870,353	17,918	192,029	155,765	279,214	150,990	74,242	195
<u>Hungry Horse Block</u>	National Forest	106,155	1,227,044	24,939	313,692	133,925	560,810	64,769	128,909	-
	Other Public	834	8,689	362	5,022	1,836	795	338	336	-
	Other Private	1,315	6,079	59	2,195	2,354	593	603	275	-
<u>Total</u>		108,304	1,241,812	25,360	320,909	138,115	562,198	65,710	129,520	-
<u>CORAM WORKING CIRCLE</u>	National Forest	355,900	3,220,404	66,621	824,559	423,574	1,273,753	334,904	295,508	1,485
	State	312	3,771	461	1,458	502	965	183	202	-
	Other Public	2,447	22,520	835	12,068	5,640	2,034	1,206	737	-
	Forest Industry	-	-	-	-	-	-	-	-	-
	Other Private	5,880	33,510	461	9,229	5,572	7,603	7,645	1,790	1,210
<u>TOTAL WORKING CIRCLE</u>		364,539	3,280,205	68,378	847,314	435,288	1,284,355	343,938	298,237	2,695

NET VOLUME (PARTIAL CUBIC FEET) SAWTIMBER-SIZE TREES BY SPECIES AND OWNER
(In Pole and Sawtimber Stands - Stocked Nonreserved Commercial Forest)

Appendix Table 5

Coram Working Circle

Block and Working Circle	Owner	Stocked Com'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf						
				WP-P	L	D	S	ILP-WLP	AF-GF-WRC	Hdw.
Coram Block	National Forest State Other Public Other Private	129,389 312 1,613 4,565	227,417 765 2,821 5,629	4,752 93 95 80	64,500 297 1,435 1,430	27,295 103 775 656	86,745 193 249 1,403	25,388 39 187 1,504	18,470 40 80 305	267 - - 251
Total		135,879	236,632	5,020	67,662	28,829	88,590	27,118	18,895	518
Spotted Bear Block	National Forest	120,356	176,805	3,583	38,585	31,633	55,843	32,273	14,847	41
Total		120,356	176,805	3,583	38,585	31,633	55,843	32,273	14,847	41
Hungry Horse Block	National Forest Other Public Other Private	106,155 834 1,315	247,533 1,770 1,244	4,989 72 12	63,600 1,024 449	27,259 375 480	112,161 159 119	13,742 72 128	25,782 68 56	- - -
Total		108,304	250,547	5,073	65,073	28,114	112,439	13,942	25,906	-
CORAM WORKING CIRCLE	National Forest State Other Public Forest Industry Other Private	355,900 312 2,447 - 5,880	651,755 765 4,591 - 6,875	13,324 93 167 - 92	166,685 297 2,459 - 1,879	86,187 103 1,150 - 1,136	254,749 193 408 - 1,522	71,403 39 259 - 1,632	59,099 40 148 - 361	308 - - - 253
TOTAL WORKING CIRCLE		364,539	663,986	13,676	171,320	88,576	256,872	73,333	59,648	561

NET VOLUME (PARTIAL CUBIC FEET) POLETIMBER-SIZE TREES BY SPECIES AND OWNER
(In Pole and Sawtimber Stands - Stocked Nonreserved Commercial Forest)

Appendix Table 6

Coram Working Circle

Block and Working Circle	Owner	Stocked Com'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf						
				WP-F	L	D	S	LP-WLP	AF-GF-WRC	Hdw.
Coram Block	National Forest	129,389	88,074	1,287	4,742	10,073	14,296	40,914	16,599	163
	State	312	185	22	7	15	52	45	44	-
	Other Public	1,613	1,071	59	64	348	208	175	216	1
	Other Private	4,565	3,690	38	48	164	376	2,665	319	80
Total		135,879	93,020	1,406	4,861	10,600	14,932	43,799	17,178	244
Spotted Bear Block	National Forest	120,356	89,486	1,482	1,904	11,463	11,501	47,211	15,824	101
		120,356	89,486	1,482	1,904	11,463	11,501	47,211	15,824	101
Hungry Horse Block	National Forest	106,155	53,378	1,388	1,729	8,695	13,167	9,620	18,694	85
	Other Public	834	526	23	24	146	146	72	114	1
	Other Private	1,315	1,517	8	191	638	141	254	273	12
		108,304	55,421	1,419	1,944	9,479	13,454	9,946	19,081	98
CORAM WORKING CIRCLE	National Forest	355,900	230,938	4,157	8,375	30,231	38,964	97,745	51,117	349
	State	312	185	22	7	15	52	45	44	-
	Other Public	2,447	1,597	82	88	494	354	247	330	2
	Forest Industry Other Private	5,880	5,207	-	239	802	-	-	592	92
TOTAL WORKING CIRCLE		364,539	237,927	4,307	8,709	31,542	39,887	100,956	52,083	443

NET VOLUME (PARTIAL CUBIC FEET) POLE AND SAWTIMBER-SIZE TREES BY SPECIES AND OWNER 1/
(In Pole and Sawtimber Stands - Stocked Nonreserved Commercial Forest)

Appendix Table 7

Coram Working Circle

Block and Working Circle	Owner	Stocked Com'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf						
				WP-P	L	D	S	LP-WLP	AF-GF-WRC	Hdw.
Coram Block	National Forest	129,389	315,491	6,039	69,242	37,368	101,041	66,302	35,069	430
	State	312	950	115	304	118	245	84	84	-
	Other Public	1,613	3,892	154	1,499	1,123	457	362	296	1
Total	Other Private	4,565	9,319	118	1,478	820	1,779	4,169	624	331
		135,879	329,652	6,426	72,523	39,429	103,522	70,917	36,073	762
Spotted Bear Block	National Forest	120,356	266,291	5,065	40,489	43,096	67,344	79,484	30,671	142
	Total	120,356	266,291	5,065	40,489	43,096	67,344	79,484	30,671	142
Hungry Horse Block	National Forest	106,155	300,911	6,377	65,329	35,954	125,328	23,362	44,476	85
	Other Public	834	2,296	95	1,048	521	305	144	182	1
	Other Private	1,315	2,761	20	640	1,118	260	382	329	12
Total		108,304	305,968	6,492	67,017	37,593	125,893	23,888	44,987	98
CORAM WORKING CIRCLE	National Forest	355,900	882,693	17,481	175,060	116,418	293,713	169,148	110,216	657
	State	312	950	115	304	118	245	84	84	-
	Other Public	2,447	6,188	249	2,547	1,644	762	506	478	2
	Forest Industry	-	-	-	-	-	-	-	-	-
TOTAL WORKING CIRCLE	Other Private	5,880	12,082	138	2,118	1,938	2,039	4,551	953	345
		364,539	901,913	17,983	180,029	120,118	296,759	174,289	111,731	1,004

1/ Summary of tables 5 and 6.

NET VOLUME (BOARD FEET) SAWTIMBER-SIZE TREES BY STRATA
(Pole and Sawtimber Stands - Nonreserved National-Forest Lands)

Appendix Table 8

Coram Working Circle

Strata	Stocked Com'l (Acres)	Total Volume (MBF)	Volume by Species - MBF							AF, GF, WRC	Hdw.
			WP	P	L	D	S	LP-WLP			
WP9W	10	204	130	-	23	20	30	-	1	-	
WP9M	430	5,246	2,451	-	989	860	860	-	86	-	
WP9P	360	2,124	1,044	-	396	360	324	-	-	-	
WP8W	10	67	24	-	19	10	12	1	1	-	
WP8M	75	135	75	-	15	15	23	-	7	-	
WP8P	20	22	10	-	4	4	2	-	2	-	
P9M	580	4,988	-	2,552	580	1,682	58	116	-	-	
P9P	225	720	-	315	180	225	-	-	-	-	
L9W	22,497	465,689	24,748	-	301,460	58,492	42,744	8,999	29,246	-	
L9M	38,142	564,504	7,629	-	392,863	91,541	34,329	22,885	15,257	-	
L9P	23,839	114,428	9,536	-	52,446	33,375	11,920	7,151	-	-	
L8W	4,051	12,153	-	-	4,051	3,241	3,241	810	810	-	
L8M	1,465	3,224	-	-	1,465	733	586	293	147	-	
L8P	255	409	-	-	179	76	26	128	-	-	
D9W	4,190	66,202	-	-	-	47,766	10,056	7,542	838	-	
D9M	22,634	138,069	18,107	-	4,527	79,220	20,370	11,318	4,527	-	
D9P	11,953	51,400	-	-	15,540	29,882	3,587	-	2,391	-	
D8W	9,907	26,749	-	-	4,954	14,860	3,963	1,981	991	-	
D8M	6,850	14,385	-	-	2,055	10,960	-	-	1,370	-	
D8P	1,780	2,848	-	-	356	2,315	-	177	-	-	

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Appendix Table 8 (continued)

Strata	Stocked Com'l (Acres)	Total Volume (MBF)	Volume by Species - MBF							AF, GF, WRC	Hdw.
			WP	P	L	D	S	LP-WLP			
S9W	8,151	157,314	-	-	-	8,151	122,265	15,487	11,411	-	
S9M	51,580	706,646	-	-	-	15,474	572,538	10,316	108,318	-	
S9P	29,498	427,722	-	-	-	-	374,625	8,850	44,247	-	
S8W	940	1,692	-	-	-	95	1,128	188	281	-	
S8M	1,615	1,615	-	-	-	162	969	323	161	-	
S8P	740	370	-	-	-	74	148	74	74	-	
LP8&9W	47,863	248,888	-	-	33,505	23,931	43,077	129,230	19,145	-	
LP8&9M	17,560	42,144	-	-	-	-	-	40,388	1,756	-	
LP8&9P	5,235	8,900	-	-	1,047	-	524	7,329	-	-	
AF9W	695	7,298	-	-	-	-	1,390	1,043	4,865	-	
AF9M	4,905	34,335	-	-	-	-	3,924	5,886	24,525	-	
AF9P	7,430	30,464	-	-	-	-	4,458	3,716	22,290	-	
AF8W	675	608	-	-	-	-	68	135	405	-	
AF8M	3,870	2,322	-	-	-	-	387	387	1,548	-	
AF8P	2,020	1,212	-	-	-	-	203	201	808	-	
WLP9W	150	1,425	-	-	150	-	225	1,050	-	-	
WLP9M	6,990	45,436	-	-	3,496	-	6,990	34,950	-	-	
WLP9P	5,180	14,604	-	-	1,136	-	3,108	10,360	-	-	
WLP8W	3,175	5,399	-	-	1,589	-	2,540	1,270	-	-	
WLP8M	6,275	5,749	-	-	1,355	-	2,510	1,884	-	-	
WLP8P	1,790	1,074	-	-	179	-	537	358	-	-	

Appendix Table 8 (continued)

Strata	Stocked Com'l (Acres)	Total Volume (MBF)	Volume by Species - MBF							AF, GF, WRC	Hdw.
			WP	P	L	D	S	LP-WLP			
Co9W	25	275	-	-	-	-	-	25	-	250	
Co9M	100	551	-	-	-	-	-	51	-	500	
Co9P	100	650	-	-	-	50	-	-	-	600	
Co8W	30	30	-	-	-	-	-	-	-	30	
Co8M	25	83	-	-	-	-	8	-	-	75	
Co8P	10	32	-	-	-	-	-	2	-	30	
TOTAL	355,900	3,220,404	63,754	2,867	824,559	423,574	1,273,753	334,904	295,508	1,485	

NET VOLUME (PARTIAL CUBIC FEET) SAWTIMBER-SIZE TREES BY STRATA
(Pole and Sawtimber Stands - Nonreserved National-Forest Lands)

Appendix Table 2

Coram Working Circle

Strata	Stocked Com'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf							AF, GF, WRC	Hdw.
			WP	P	L	D	S	LP-WLP			
WP9W	10	41	26	-	-	5	4	6	-	-	-
WP9M	430	1,059	491	-	-	202	176	172	-	18	-
WP9P	360	425	209	-	-	79	72	65	-	-	-
WP8W	10	13	5	-	-	4	2	2	-	-	-
WP8M	75	27	15	-	-	3	3	5	-	1	-
WP8P	20	4	2	-	-	1	1	-	-	-	-
P9M	580	1,003	-	510	-	116	342	12	23	-	-
P9P	225	144	-	63	-	36	45	-	-	-	-
I9W	22,497	94,711	4,949	-	-	61,416	11,923	8,549	2,025	5,849	-
I9M	38,142	115,188	1,526	-	-	80,098	18,689	6,865	4,959	3,051	-
I9P	23,839	23,361	1,907	-	-	10,727	6,913	2,384	1,430	-	-
I8W	4,051	2,430	-	-	-	810	648	648	162	162	-
I8M	1,465	645	-	-	-	293	147	117	58	30	-
I8P	255	84	-	-	-	35	16	5	28	-	-
D9W	4,190	13,407	-	-	-	-	9,638	2,011	1,591	167	-
D9M	22,634	28,067	3,621	-	-	905	16,071	4,075	2,490	905	-
D9P	11,953	10,518	-	-	-	3,227	6,096	717	-	478	-
D8W	9,907	5,450	-	-	-	991	3,072	793	396	198	-
D8M	6,850	2,946	-	-	-	411	2,261	-	-	274	-
D8P	1,780	587	-	-	-	71	480	-	36	-	-

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Appendix Table 9 (continued)

Strata	Stocked Com'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf						AF, GF, WRC	Hdw.
			WR	P	L	D	S	LP-WLP		
S9W	8,151	31,625	-	-	-	1,630	24,453	3,260	2,282	-
S9M	51,580	141,328	-	-	-	3,095	114,507	2,063	21,663	-
S9P	29,498	85,545	-	-	-	-	74,925	1,770	8,850	-
S8W	940	337	-	-	-	19	225	37	56	-
S8M	1,615	322	-	-	-	32	193	65	32	-
S8P	740	74	-	-	-	15	30	14	15	-
LP8&9W	47,863	51,691	-	-	6,701	4,787	8,615	27,760	3,828	-
LP8&9M	17,560	8,955	-	-	-	-	-	8,604	351	-
LP8&9P	5,235	1,885	-	-	209	-	105	1,571	-	-
AF9W	695	1,474	-	-	-	-	278	223	973	-
AF9M	4,905	6,921	-	-	-	-	785	1,231	4,905	-
AF9P	7,430	6,166	-	-	-	-	891	817	4,458	-
AF8W	675	122	-	-	-	-	14	27	81	-
AF8M	3,870	464	-	-	-	-	77	77	310	-
AF8P	2,020	243	-	-	-	-	41	40	162	-
WLP9W	150	277	-	-	8	-	45	224	-	-
WLP9M	6,990	8,983	-	-	140	-	1,398	7,445	-	-
WLP9P	5,180	2,901	-	-	52	-	622	2,227	-	-
WLP8W	3,175	858	-	-	64	-	508	286	-	-
WLP8M	6,275	942	-	-	63	-	502	377	-	-
WLP8P	1,790	196	-	-	18	-	107	71	-	-

(Continued on next page)

Appendix Table 9 (continued)

Strata	Stocked Com'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf							AF, GF, WRC	Hdw.
			WP	P	L	D	S	IP-WLP			
Co9W	25	57	-	-	-	-	-	5	-	52	
Co9M	100	115	-	-	-	-	-	11	-	104	
Co9P	100	135	-	-	-	10	-	-	-	125	
Co8W	30	6	-	-	-	-	-	-	-	6	
Co8M	25	17	-	-	-	-	2	-	-	15	
Co8P	10	6	-	-	-	-	-	-	-	6	
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TOTAL	355,900	651,755	12,751	573	166,685	86,187	254,749	71,403	59,099	308	

NET VOLUME (PARTIAL CUBIC FEET) POLETTI PER-SIZE TREES BY STRATA
(Pole and Sawtimber Stands - Nonreserved National-Forest Land)

Appendix Table 10

Coram Working Circle

Strata	Stocked Com'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf							AF, GF, WRC	Hdw.
			WP	P	L	D	S	LP-WLP			
WP9W	10	3	1	-	-	-	2	-	-	-	-
WP9M	430	276	86	-	9	43	86	9	43	-	-
WP9P	360	77	25	-	3	11	28	7	3	-	-
WP8W	10	12	3	-	1	2	1	2	3	-	-
WP8M	75	66	45	-	4	5	7	4	1	-	-
WP8P	20	13	8	-	1	3	-	-	1	-	-
P9M	580	249	-	12	52	58	11	116	-	-	-
P9P	225	17	-	9	4	4	-	-	-	-	-
L9W	22,497	15,749	-	-	-	-	-	-	-	-	-
L9M	38,142	22,122	1,907	-	1,526	2,289	9,899	1,125	4,725	-	-
L9P	23,839	8,345	477	-	-	476	9,535	6,437	6,865	-	-
L8W	4,051	6,887	-	-	3,241	1,620	810	406	810	-	-
L8M	1,465	1,686	-	-	879	440	74	220	73	-	-
L8P	255	300	-	-	153	77	21	39	10	-	-
D9W	4,190	6,244	-	-	-	-	-	-	-	-	-
D9M	22,634	8,826	1,584	-	-	1,425	1,927	796	2,096	-	-
D9P	11,953	15,779	-	-	239	2,036	-	2,036	3,170	-	-
D8W	9,907	10,900	-	-	991	7,431	991	496	4,064	239	-
D8M	6,850	5,618	-	-	1,165	3,425	274	685	991	-	-
D8P	1,780	410	-	-	107	267	-	36	69	-	-

(Continued on next page)

Appendix Table 10 (continued)

Strata	Stocked Com'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf						AF, GF, WRC	Hdw.
			WP	P	L	D	S	LP-WLP		
S9W	8,151	1,386	-	-	-	897	-	-	489	-
S9M	51,580	14,957	-	-	-	-	3,610	-	11,347	-
S9P	29,498	9,440	-	-	-	-	1,770	1,770	5,900	-
S8W	940	1,551	-	-	-	19	470	489	573	-
S8M	1,615	2,084	-	-	-	16	808	534	726	-
S8P	740	1,133	-	-	-	22	371	296	444	-
LP8&9W	47,863	58,394	-	-	-	-	4,787	51,213	2,394	-
LP8&9M	17,560	14,224	-	-	-	-	-	14,224	-	-
LP8&9P	5,235	2,879	-	-	-	105	104	2,618	52	-
AF9W	695	278	-	-	-	-	-	-	-	-
AF9M	4,905	1,177	-	-	-	-	35	139	104	-
AF9P	7,430	1,709	-	-	-	-	196	490	491	-
AF8W	675	966	-	-	-	-	149	743	817	-
AF8M	3,870	2,593	-	-	-	-	34	459	473	-
AF8P	2,020	1,070	-	-	-	-	77	387	2,129	-
WLP9W	150	68	-	-	-	-	61	303	706	-
WLP9M	6,990	1,747	-	-	-	-	15	38	15	-
WLP9P	5,180	1,036	-	-	-	-	349	1,049	349	-
WLP8W	3,175	3,588	-	-	-	31	259	518	259	-
WLP8M	6,275	5,585	-	-	-	63	64	3,175	318	-
WLP8P	1,790	1,361	-	-	-	18	188	5,020	314	-
			-	-	-		36	1,253	54	-

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Appendix Table 10 (continued)

Strata	Stocked Com'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf						AF, GF, WRC	Hdw.
			WP	P	L	D	S	LP-WLP		
Co9W	25	15	-	-	-	1	-	13	-	1
Co9M	100	56	-	-	-	4	-	2	-	50
Co9P	100	10	-	-	-	-	-	-	-	10
Co8W	30	21	-	-	-	-	-	-	-	21
Co8M	25	28	-	-	-	-	3	-	-	25
Co8P	10	3	-	-	-	-	-	-	-	3
- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
TOTAL	355,900	230,938	4,136	21	8,375	30,231	38,964	97,745	51,117	349

NET VOLUME (PARTIAL CUBIC FEET) OF SAWTIMBER AND POLETIMBER-SIZE TREES BY STRATA
(Pole and Sawtimber Size Stands - Nonreserved National-Forest Land)

Appendix Table 11

Coram Working Circle

Strata	Stocked Ccm'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf							AF, GF, WRC	Hdw.
			WP	P	L	D	S	LP-WLP			
WP9W	10	44	27	-	5	4	8	-	-	-	-
WP9M	430	1,335	577	-	211	219	258	9	61	-	-
WP9P	360	502	234	-	82	83	93	7	3	-	-
WP8W	10	25	8	-	5	4	3	2	3	-	-
WP8M	75	93	60	-	7	8	12	4	2	-	-
WP8P	20	17	10	-	2	4	-	-	1	-	-
P9M	580	1,252	-	522	168	400	23	139	-	-	-
P9P	225	161	-	72	40	49	-	-	-	-	-
I9W	22,497	110,460	4,949	-	61,416	11,923	18,448	3,150	10,574	-	-
I9M	38,142	137,310	3,433	-	81,624	20,978	16,400	4,959	9,916	-	-
I9P	23,839	31,706	2,384	-	10,727	7,389	3,100	7,867	239	-	-
I8W	4,051	9,317	-	-	4,051	2,268	1,458	568	972	-	-
I8M	1,465	2,331	-	-	1,172	587	191	278	103	-	-
I8P	255	384	-	-	188	93	26	67	10	-	-
D9W	4,190	19,651	-	-	-	11,063	3,938	2,387	2,263	-	-
D9M	22,634	36,893	5,205	-	905	18,107	4,075	4,526	4,075	-	-
D9P	11,953	26,297	-	-	3,466	15,539	1,913	598	4,542	-	239
D8W	9,907	16,350	-	-	1,982	10,503	1,784	892	1,189	-	-
D8M	6,850	8,564	-	-	1,576	5,686	274	685	343	-	-
D8P	1,780	997	-	-	178	747	-	72	-	-	-

(Continued on next page)

Appendix Table 11 (continued)

Strata	Stocked Com'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf							AF, GF, WRC	Hdw.
			WP	P	L	D	S	LP-WLP			
S9W	8,151	33,011	-	-	-	2,527	24,453	3,260	2,771	-	
S9M	51,580	156,285	-	-	-	3,095	118,117	2,063	33,010	-	
S9P	29,498	94,985	-	-	-	-	76,695	3,540	14,750	-	
S8W	940	1,888	-	-	-	38	695	526	629	-	
S8M	1,615	2,406	-	-	-	48	1,001	599	758	-	
S8P	740	1,207	-	-	-	37	401	310	459	-	
LP8&9W	47,863	110,085	-	-	6,701	4,787	13,402	78,973	6,222	-	
LP8&9M	17,560	23,179	-	-	-	-	-	22,828	351	-	
LP8&9P	5,235	4,764	-	-	209	105	209	4,189	52	-	
AF9W	695	1,752	-	-	-	-	313	362	1,077	-	
AF9M	4,905	8,098	-	-	-	-	981	1,721	5,396	-	
AF9P	7,430	7,875	-	-	-	-	1,040	1,560	5,275	-	
AF8W	675	1,088	-	-	-	-	48	486	554	-	
AF8M	3,870	3,057	-	-	-	-	154	464	2,439	-	
AF8P	2,020	1,313	-	-	-	-	102	343	868	-	
WLP9W	150	345	-	-	8	-	60	262	15	-	
WLP9M	6,990	10,730	-	-	140	-	1,747	8,494	349	-	
WLP9P	5,180	3,937	-	-	52	-	881	2,745	259	-	
WLP8W	3,175	4,446	-	-	64	31	572	3,461	318	-	
WLP8M	6,275	6,527	-	-	63	63	690	5,397	314	-	
WLP8P	1,790	1,557	-	-	18	18	143	1,324	54	-	

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Appendix Table 11 (continued)

Strata	Stocked Com'l (Acres)	Total Volume (Mcf)	Volume by Species - Mcf							AF, GF, WRC	Hdw.
			WP	P	L	D	S	LP-WLP			
Co9W	25	72	-	-	-	1	-	18	-	53	
Co9M	100	171	-	-	-	4	-	13	-	154	
Co9P	100	145	-	-	-	10	-	-	-	135	
Co8W	30	27	-	-	-	-	-	-	-	27	
Co8M	25	45	-	-	-	-	5	-	-	40	
Co8P	10	9	-	-	-	-	-	-	-	9	
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TOTAL	355,900	882,693	16,887	594	175,060	116,418	293,713	169,148	110,216	657	

NET VOLUME (PARTIAL CUBIC FOOT) PER ACRE BY STRATA
Nonreserved National-Forest Land

Appendix Table 12

Coram Working Circle

Strata	Species																		Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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WP9W	2,600	50	-	-	470	10	410	20	600	200	-	20	20	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Appendix Table 12 (continued)

Strata	Species																Total															
	WP				L				D				S								IP-WLP				AF-GP-WRC				Hdw.			
	Saw		Pole		Saw		Pole		Saw		Pole		Saw		Pole		Saw		Pole		Saw		Pole		Saw		Pole		Saw		Pole	
Cubic Feet																																
S9W	-	-	-	-	-	-	200	110	3,000	-	400	-	280	60	-	-	-	-	-	-	-	-	-	-	3,880	170	4,050					
S9M	-	-	-	-	-	-	60	-	2,220	70	40	-	420	220	-	-	-	-	-	-	-	-	-	-	2,740	290	3,030					
S9P	-	-	-	-	-	-	-	-	2,540	60	60	60	300	200	-	-	-	-	-	-	-	-	-	-	2,900	320	3,220					
S8W	-	-	-	-	-	-	20	20	240	500	40	520	60	610	-	-	-	-	-	-	-	-	-	-	360	1,650	2,010					
S8M	-	-	-	-	-	-	20	10	120	500	40	330	20	450	-	-	-	-	-	-	-	-	-	-	200	1,290	1,490					
S8P	-	-	-	-	-	-	20	30	40	500	20	400	20	600	-	-	-	-	-	-	-	-	-	-	100	1,530	1,630					
IP8&9W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
IP8&9M	-	-	-	-	-	140	100	-	180	100	580	1,070	80	50	-	-	-	-	-	-	-	-	-	-	1,080	1,220	2,300					
IP8&9P	-	-	-	-	-	40	-	20	20	20	300	500	20	10	-	-	-	-	-	-	-	-	-	-	510	810	1,320					
AF9W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360	550	910					
AF9M	-	-	-	-	-	-	-	-	400	50	320	200	1,400	150	-	-	-	-	-	-	-	-	-	-	2,120	400	2,520					
AF9P	-	-	-	-	-	-	-	-	160	40	251	100	1,000	100	-	-	-	-	-	-	-	-	-	-	1,411	240	1,651					
AF8W	-	-	-	-	-	-	-	-	120	20	110	100	600	110	-	-	-	-	-	-	-	-	-	-	830	230	1,060					
AF8M	-	-	-	-	-	-	-	-	20	50	40	680	120	700	-	-	-	-	-	-	-	-	-	-	180	1,430	1,610					
AF8P	-	-	-	-	-	-	-	-	20	20	20	100	80	550	-	-	-	-	-	-	-	-	-	-	120	670	790					
WLP9W	-	-	-	-	-	-	-	-	20	30	20	150	80	350	-	-	-	-	-	-	-	-	-	-	120	530	650					
WLP9M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
WLP9P	-	-	-	-	-	-	-	-	300	100	1,490	250	-	100	-	-	-	-	-	-	-	-	-	-	-	1,840	450	2,290				
WLP8W	-	-	-	-	-	50	-	-	200	50	1,065	150	-	50	-	-	-	-	-	-	-	-	-	-	1,285	250	1,535					
WLP8M	-	-	-	-	-	10	-	-	120	50	430	100	-	50	-	-	-	-	-	-	-	-	-	-	560	200	760					
WLP8P	-	-	-	-	-	20	-	10	160	20	90	1,000	-	100	-	-	-	-	-	-	-	-	-	-	270	1,130	1,400					
	-	-	-	-	-	10	-	10	80	30	60	800	-	50	-	-	-	-	-	-	-	-	-	-	150	890	1,040					
	-	-	-	-	-	10	-	10	60	20	40	700	-	30	-	-	-	-	-	-	-	-	-	-	110	760	870					

(Continued on next page)

Appendix Table 12 (continued)

Strata	Species																		Total																													
	WP						P						L									D						S						IP-WIP						AF-GF-WRC						Hdw.		
	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole	Saw	Pole														
Co9W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,080	50	2,290	600	2,890									
Co9M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,040	500	1,150	560	1,710									
Co9P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,248	100	1,348	100	1,448									
Co8W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	208	700	208	700	908									
Co8M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	620	1,000	680	1,100	1,780									
Co8P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	620	300	660	330	990									
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									

NET VOLUME (BOARD FEET) PER ACRE BY STRATA
Nonreserved National-Forest Lands

Appendix Table 13

Coram Working Circle

Strata	Species								Total
	WP	P	L	D	S	LP-WLP	IAF-GF-WRC	Hdw.	
	Board Feet								
WP9W	13,000	-	2,300	2,000	3,000	-	100	-	20,400
WP9M	5,700	-	2,300	2,000	2,000	-	200	-	12,200
WP9P	2,900	-	1,100	1,000	900	-	-	-	5,900
WP8W	2,400	-	1,900	1,000	1,200	100	100	-	6,700
WP8M	1,000	-	200	200	300	-	100	-	1,800
WP8P	500	-	200	200	100	-	100	-	1,100
P9M	-	4,400	1,000	2,900	100	200	-	-	8,600
P9P	-	1,400	800	1,000	-	-	-	-	3,200
L9W	1,100	-	13,400	2,600	1,900	400	1,300	-	20,700
L9M	200	-	10,300	2,400	900	600	400	-	14,800
L9P	400	-	2,200	1,400	500	300	-	-	4,800
L8W	-	-	1,000	800	800	200	200	-	3,000
L8M	-	-	1,000	500	400	200	100	-	2,200
L8P	-	-	700	300	100	500	-	-	1,600
D9W	-	-	-	11,400	2,400	1,800	200	-	15,800
D9M	800	-	200	3,500	900	500	200	-	6,100
D9P	-	-	1,300	2,500	300	-	200	-	4,300
D8W	-	-	500	1,500	400	200	100	-	2,700
D8M	-	-	300	1,600	-	-	200	-	2,100
D8P	-	-	200	1,300	-	100	-	-	1,600
S9W	-	-	-	1,000	15,000	1,900	1,400	-	19,300
S9M	-	-	-	300	11,100	200	2,100	-	13,700
S9P	-	-	-	-	12,700	300	1,500	-	14,500
S8W	-	-	-	100	1,200	200	300	-	1,800
S8M	-	-	-	100	600	200	100	-	1,000
S8P	-	-	-	100	200	100	100	-	500
LP8&9W	-	-	700	500	900	2,700	400	-	5,200
LP8&9M	-	-	-	-	-	2,300	100	-	2,400
LP8&9P	-	-	200	-	100	1,400	-	-	1,700

(Continued on next page)

Appendix Table 13 (continued)

Coram Working Circle

Strata	Species								Total
	WP	P	L	D	S	LP-WLP	AF-GF-WRC	Hdw.	
	Board Feet								
AF9W	-	-	-	-	2,000	1,500	7,000	-	10,500
AF9M	-	-	-	-	800	1,200	5,000	-	7,000
AF9P	-	-	-	-	600	500	3,000	-	4,100
AF8W	-	-	-	-	100	200	600	-	900
AF8M	-	-	-	-	100	100	400	-	600
AF8P	-	-	-	-	100	100	400	-	600
- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
WLP9W	-	-	1,000	-	1,500	7,000	-	-	9,500
WLP9M	-	-	500	-	1,000	5,000	-	-	6,500
WLP9P	-	-	200	-	600	2,000	-	-	2,800
WLP8W	-	-	500	-	800	400	-	-	1,700
WLP8M	-	-	200	-	400	300	-	-	900
WLP8P	-	-	100	-	300	200	-	-	600
- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
Co9W	-	-	-	-	-	1,000	-	10,000	11,000
Co9M	-	-	-	-	-	500	-	5,000	5,500
Co9P	-	-	-	500	-	-	-	6,000	6,500
Co8W	-	-	-	-	-	-	-	1,000	1,000
Co8M	-	-	-	-	300	-	-	3,000	3,300
Co8P	-	-	-	-	-	200	-	3,000	3,200
- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -

CONVERTING FACTORS
National-Forest Lands

Appendix Table 14

Coram Working Circle

a. Board Foot - Cubic Foot Ratios - Sawtimber-Size Trees:

<u>Species</u>	<u>Ratio</u>
WP	5.0
PP	5.0
L-DF	4.9
S	5.0
WRC-GF-WH	4.8
AF-LP-WLP	4.7

b. Board Foot - Cubic Foot Ratio for Pole-Size Trees:

2.5 Board Feet = 1 Cubic Foot

c. Cubic Foot - Cord Ratio for Pole-Size Trees:

90 Cubic Feet = 1 Cord

d. Board Foot - Cord Ratios:

1. Sawtimber-Size Trees:

2 Cords = 1 M Board Feet

2. Pole-Size Trees:

3 Cords = 1 M Board Feet

PERIODIC ANNUAL INCREMENT AND MORTALITY BY TYPES 1/
POLE AND SAWTIMBER STANDS

(Nonreserved National-Forest Lands)

Appendix Table 15

Coram Working Circle

Forest Type	Com'l Forest Area (Acres)	Gross PAI /acre (cf)	Mort. /acre (cf)	Net PAI /acre (cf)	Percent Volume Sawtbr.	Net PAI/acre (cf)	Other (cf)	cu.ft. bd.ft. ratio	Mort. Sawtbr. /acre (BF)	Net Sawtbr. PAI/acre (BF)	Total Sawtbr. Mort. (BF)	Total net PAI Sawtbr. (MBF)	Other (Mcf)
WP	2/ 905	65.8	9.5	56.3	77.7	43.7	12.6	5.0	37	218	33	197	11
PP	2/ 805	38.0	21.1	16.9	81.1	13.7	3.2	5.0	85	68	69	55	3
L	90,249	39.3	12.7	26.6	81.1	21.6	5.0	4.9	50	106	4,557	9,566	451
DF	57,314	54.3	6.0	48.3	56.1	27.1	21.2	4.9	16	133	951	7,623	1,215
S	92,524	35.1	24.1	11.0	89.4	9.8	1.2	5.0	108	49	9,900	4,534	111
AF	19,595	35.1	24.1	11.0	67.5	7.4	3.6	4.7	76	35	1,491	686	71
WBP	23,850	18.3	10.6	7.7	54.0	4.2	3.5	4.7	27	20	649	477	83
LPP	70,658	39.5	.9	38.6	45.8	17.7	20.9	4.7	2	83	134	5,865	1,477
Totals	355,900										17,784	29,003	3,422
Average/acre/year											50.0	82.0	9.6

1/ Based on average PAI past 10 years and average annual mortality past 5 years.

2/ Estimated

PRESENT MEAN ANNUAL INCREMENT BY TYPES
(Nonreserved National-Forest Lands)

Coram Working Circle

Appendix Table 16

Forest Type	Com'l Forest Area (Acres)	Sites (Percent)	Actual Stocking (Percent)	Mean Annual Increment 1/				Total 3/ (MBF)
				Sawtimber (BF Per Acre)	Total (MBF)	Poletimber (cf Per Acre) 2/	Total (Mcf)	
WP	905	III - 100	44.6	183	166	8	7	3
PP	805	IV - 100	44.6	101	81	3	2	1
L	110, 118	II - 2 III - 42 IV - 56	55.3	87	9,580	15	1,652	661
DF	66, 989	III - 13 IV - 14 V - 73	53.4	80	5,359	16	1,072	429
S	97, 799	III - 24 IV - 76	47.1	92	8,998	22	2,151	860
AF	34, 170	III - 24 IV - 76	40.4	61	2,084	20	683	273
WBP	30, 015	III - 38 IV - 62	48.5	29	870	11	330	132
LPP	125, 249	II - 50 III - 47 IV - 3	64.0	58	7,264	22	2,755	1,102
TOTAL	466, 050			74	34,402	18	8,652	3,461

1/ Normal MAI adjusted to present stocking or actual MAI. 3/ Based on a converting factor of 2.5

2/ No precise information on this size class. Approx. only.

SUSTAINED YIELD CAPACITY BY TYPES
(Nonreserved National-Forest Lands)

Appendix Table 17

Coream Working Circle

Forest Type	Rotation (Years)	Site Class	Com'l Forest Area (Acres)	Normal MAI/ac. ^{1/}		Realizable MAI/Acre ^{2/}		Total Normal		Total Realizable	
				Sawt. BF	Pole ^{3/} cf	Sawt. BF	Pole ^{3/} cf	Sawt. MBF	Pole ^{3/} Mcf	Sawt. MBF	Pole ^{3/} Mcf
WP	120	III	905	412	19	288	13	372	17	260	12
PP	120	IV	805	227	7	159	5	183	6	128	4
L	140	III - IV	110,118	158	28	111	20	17,399	3,083	12,223	2,202
DF	140	III - IV	66,989	150	30	105	21	10,048	2,010	7,034	1,407
S	140	III - IV	97,799	195	48	136	33	19,071	4,694	13,300	3,227
AF	140	III - IV	34,170	150	49	105	34	5,125	1,674	3,588	1,162
WBP	140	IV - V	30,015	60	23	42	16	1,801	690	1,261	480
IPP	120	III - IV	125,249	90	35	63	25	11,272	4,384	7,890	3,131
Total			466,050	140	35	98	25	65,271	16,558	45,684	11,625

^{1/}From "Tables of Yields and Mean Annual Increment of Fully Stocked Stands in Major Forest Types of Region."

^{2/}70 Percent of normal.

^{3/}No precise information for the size class - approximation only.

AREA OF AGE CLASSES BY TYPES ^{1/}
(Nonreserved Commercial National-Forest Lands)

Appendix Table 18

Coram Working Circle

Age Class	Major Forest Types in Acres								Total Acres	Per-cent
	WP2/	PP2/	L	DF	S	AF	WBP	LPP		
1- 20	-	-	-	-	-	-	-	-	-	-
21- 40	-	-	2,174	2,669	-	-	-	74,945	79,788	17.3
41- 60	105	-	2,174	21,353	-	16,786	-	16,238	56,656	12.3
61- 80	-	-	-	-	4,745	-	-	3,747	8,492	1.9
81-100	-	-	-	3,336	12,337	-	-	3,747	19,420	4.2
101-120	400	400	2,174	8,675	13,286	-	-	3,747	28,682	6.2
121-140	-	-	-	6,006	16,133	-	-	3,747	25,886	5.6
141-160	-	-	6,522	3,336	10,439	8,392	3,580	-	32,269	7.0
161-180	-	-	8,696	-	7,592	-	7,457	3,747	27,492	6.0
181-200	-	-	6,522	-	7,592	8,392	3,878	3,747	30,121	6.5
200+	400	405	80,436	21,354	22,775	-	14,915	11,244	151,529	33.0
Subtotal	905	805	108,698	66,729	94,899	33,570	29,830	124,909	460,345	100.0
Nonstocked			1,420	260	2,900	600	185	340	5,705	-
TOTAL	905	805	110,118	66,989	97,799	34,170	30,015	125,249	466,050	

^{1/} From inventory plots sampled in 1958 and 1959

^{2/} Estimated age distribution

AREA BY SITE AND TYPE 1/
(Nonreserved Commercial National-Forest Lands)

Appendix Table 19

Coram Working Circle

Forest Type	Site		
	Good	Medium	Poor
	Percent		
WP		100	
PP		100	
L	2	42	52
DF	13	14	73
S		24	76
AF		24	76
WBP		38	62
LPP	50	47	3

1/ From inventory plots sampled in 1958 and 1959.

LOG GRADES BY SPECIES 1/
(Nonreserved Commercial National-Forest Lands)

Appendix Table 20

Coram Working Circle

Species	Log Grades			
	1	2	3	4
	Percent			
WP		12	75	13
L	34	27	31	8
DF	7	22	55	16
S		5	58	37
LPP	4	15	45	36
AF		2	51	47

1/ In accordance with "Field Instructions for Forest Inventory - Rocky Mountain Area" - Intermountain Forest and Range Experiment Station 1956.

2/ No data for Ponderosa Pine and Hardwoods.

SALVABLE DEAD AND USABLE CULL

(Nonreserved Commercial National-Forest Lands)

Appendix Table 21

Coram Working Circle

Forest Type	Com'l Forest Area (Acres)	Salvable Dead		Usable Cull		Total Usable (Cords)
		Per Acre (Cords)	Total (Cords)	Per Acre (Cords)	Total (Cords)	
WP	800	6	2,400	6	2,400	4,800
PP	805	4	1,610	4	1,610	3,220
L	84,478	12	337,912	9	253,434	591,346
DF	38,777	12	155,108	9	116,331	271,439
S	89,229	15	446,145	6	178,458	624,603
LPP	70,658	6	141,316	3	70,658	211,974
AF	13,030	6	26,060	3	13,040	39,100
WBP	12,320	6	24,640	3	12,320	36,960
TOTAL	310,097		1,135,191		648,251	1,783,442

INVENTORY TECHNIQUE AND ACCURACY

Data for the inventory of this plan are based on instructions issued by Region One in 1955 and 1956 and on "Field Instructions for Forest Inventory" prepared by the Intermountain Forest and Range Experiment Station. In brief, the technique involved was:

1. Aerial photointerpretation on 1958 pictures of the various strata (forest type and condition classes) accomplished during 1958 and 1959.
2. On-the-ground checking of these classifications accomplished in 1959.
3. Transfer of strata classifications to a 2-inch-to-a-mile planimetric map accomplished in 1960.
4. Area calculations by strata accomplished in 1960.
5. Sampling each important strata (5,000 acres or more) to established standards accomplished in 1958 and 1959.
6. Testing the statistical accuracy of the data.

RELIABILITY OF THE DATA

In determining the volume and acreage of the various cover types (strata), there are two sources of errors:

1. Technique errors in measuring, recording and compiling the acreage and volume data. These errors are minimized by adequate training and checking of individuals charged with the field and office work.
2. Sampling errors which are measurements of the reliability of estimates taken from a variable population. If time and money were not limiting factors, every tree could be measured and the sampling error reduced to zero. Time and money are limiting factors, however, which necessitates sampling a portion of the whole, thus getting irregular individual measurements and causing the estimate of the whole to be somewhat in error.

Guidelines have been established for the various strata so that sampling is sufficiently intense to restrict the error of accuracy within acceptable limits. The objective in this Region is to hold the sampling error for a working circle within 10 percent, two times out of three. This objective has been met, as is indicated in the table which follows, inasmuch as the sampling error for all strata combined is 8 percent for cubic contents. This means that the total inventory volume of 882,693 M cubic feet on national-forest lands may expect to be within $\pm 70,616$ M cubic feet of the true volume on the working circle, two times out of three. Similarly, the sawtimber estimate on national-forest lands is also about 3,220,404 M board feet $\pm 257,632$ M board feet, two times out of three.

COEFFICIENT OF VARIATION AND SAMPLING ERRORS FOR THE
MAJOR STRATA FOR CUBIC FOOT VOLUME SAMPLES

Appendix Table 22

Coram Working Circle

Strata	Coefficient of Variation	Sampling Error Percent (1 S.D.)
L9W	17	8
L9M	41	15
L9P	114	47
Total Larch		10
D9W	34	24
D9M	48	24
D9P	54	31
Total Douglas-fir		12
S9W	34	17
S9M	30	10
S9P	61	27
Total Spruce		11
LP8W	93	38
LP8M	87	61
Total Lodgepole		30
GRAND TOTAL		8

COMPUTATION OF ALLOWABLE ANNUAL CUT OF SAWTIMBER (SCRIBER C) FROM HARVEST CUTTINGS

NATIONAL FOREST LANDS

Appendix Table 23

Coram Working Circle

KEMP FORMULA

$$AAC = \left(\frac{7A_m + 5A_p + 3A_s + A_n}{4R} \right) V_m$$

AAC = Allowable annual cut

A_n = Area of nonstocked

A_m = Area of sawtimber stands

4 = Number of stand-size classes

A_p = Area of pole stands

R = Rotation in years

A_s = Area of seedling & sapling stands

V_m = Average volume per acre of sawtimber stratum

Type	Rotation		Annual Cutting Area - Acres -	V _m - BF -	AAC Sawt. - MBF -
WP	120	$AAC = \frac{7(800) + 5(105) + 3(0) + 1(0)}{4 \times 120}$	13	x 9,467 =	123
PP	120	$AAC = \frac{7(805) + 5(0) + 3(0) + 1(0)}{4 \times 120}$	12	x 7,091 =	85
L	140	$AAC = \frac{7(84,478) + 5(5,771) + 3(18,449) + 1(625)}{4 \times 140}$	1,181	x 13,549 =	16,001
DF	140	$AAC = \frac{7(38,777) + 5(18,537) + 3(9,415) + 1(70)}{4 \times 140}$	701	x 6,593 =	4,622
S	140	$AAC = \frac{7(89,229) + 5(3,295) + 3(2,375) + 1(696)}{4 \times 140}$	1,159	x 14,476 =	16,778
AF	140	$AAC = \frac{7(13,030) + 5(6,565) + 3(13,975) + 1(144)}{4 \times 140}$	297	x 5,533 =	1,643

(Continued on next page)

Appendix Table 23 (continued)

WBP	140	AAC = $\frac{7(12,545) + 5(11,305) + 3(5,980) + 1(70)}{4 \times 140}$	=			
LTP	120	AAC = $\frac{7(18,736) + 5(16,593) + 3(27,125) + 1(165)}{4 \times 120}$	=			
(1/2 acreage)						

Allowable Annual Cut Totals

4,269 Acres		46,782 MBF
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(Continued on next page)

Annual Cutting Area - Acres -		$\frac{Vm}{- BF -}$		AAC Sawt. - MBF -
290 x		5,017 =		1,455
616 x		9,863 =		6,075

Appendix Table 23 (continued)

ALLOWABLE ANNUAL CUT OF SAWTIMBER BY SPECIES
NATIONAL FOREST LANDS

Forest Type	Annual Cutting Area	Volume by Species								Total
		WP	PP	L	DF	S	AF	WBP	LPP	
		MBF (Scribner C)								
WP	13	70	-	18	16	18	1	-	-	123
PP	12	-	41	13	28	1	-	-	2	85
L	1,181	650	-	10,649	2,595	973	648	-	486	16,001
DF	701	138	-	277	3,052	647	92	-	416	4,622
S	1,159	-	-	-	503	13,758	1,678	-	839	16,778
AF	297	-	-	-	-	263	1,134	-	246	1,643
WBP	290	-	-	131	-	233	-	1,091	-	1,455
IPP	616	-	-	607	304	668	304	-	4,192	6,075
TOTAL	4,269	858	41	11,695	6,498	16,561	3,857	1,091	6,181	46,782

ALLOWABLE ANNUAL CUT OF OTHER MATERIAL (POLE SIZE) FROM HARVEST CUTTINGS
NATIONAL FOREST LANDS

Forest Type	Annual Cutting Area	Average Acre Volume	Total Allowable Cut		
			M cu.ft.	1/Cords	2/M bd.ft.
WP	13	445	6	66	22
PP	12	330	4	44	15
L	1,181	547	646	7,177	2,392
DF	701	795	557	6,188	2,063
S	1,159	289	335	3,722	1,241
AF	297	243	72	800	267
WBP	290	234	68	755	252
LPP (Sawt.)	616	500	308	3,422	1,141
LPP (Pole)	717	1,068	1,104	12,265	4,088
TOTAL	4,986		3,100	34,439	11,481

1/ Converting factor - 90 cubic feet = 1 cord

2/ Converting factor - 3 cords = 1 M board feet

ALLOWABLE ANNUAL CUT OF SAWTIMBER FROM HARVEST CUTTINGS
NATIONAL-FOREST LANDS

Appendix Table 24

Coram Working Circle

Hanzlik Formula

$$AAC = \frac{Ga}{R} + I$$

AAC = Allowable annual cut

Ga = Volume of growing stock over rotation age

I = Mean annual increment

R = Rotation age

Type and Rotation

Sawtimber (MBM)

W. Pine	120	$AAC = \frac{7574}{120} + 166$	=	229
P. Pine	120	$AAC = \frac{5708}{120} + 81$	=	128
Larch	140	$AAC = \frac{1,120,584}{140} + 9580$	=	17,584
D.-fir	140	$AAC = \frac{147,778}{140} + 5359$	=	6,414
Spruce	140	$AAC = \frac{693,633}{140} + 8998$	=	13,952
A. Fir	140	$AAC = \frac{72,097}{140} + 2084$	=	2,599
Wb. Pine	140	$AAC = \frac{62,941}{140} + 870$	=	1,319
Lp. Pine	120	$AAC = \frac{112,474}{120} + 7264$	=	<u>8,201</u>
Total				50,426 M Bd.Ft.

VOLUME OF SAWTIMBER OVER ROTATION AGE

National Forest

Forest Type	Area of Sawtimber	Area Over Rot. Age	Percent of Area Over Rot. Age	Sawtimber Volume	
				Growing Stock	Over Rot. Age
	<u>Acres</u>	<u>Acres</u>	<u>Percent</u>	<u>- - - M Bd. Ft. - - -</u>	
W. Pine	800	800	100.0	7,574	7,574
P. Pine	805	805	100.0	5,708	5,708
Larch	84,478	82,704	97.9	1,144,621	1,120,584
D.-fir	38,777	22,413	57.8	255,671	147,778
Spruce	89,229	47,916	53.7	1,291,682	693,633
A. Fir	13,030	13,030	100.0	72,097	72,097
Wb. Pine	12,545	12,545	100.0	62,941	62,941
Lp. Pine	(Used a portion of strata 8&9)		75.0	149,966	112,474
Total	239,664			2,990,260	2,222,789

ALLOWABLE ANNUAL CUT OF SAWTIMBER FROM HARVEST CUTTINGS NATIONAL FOREST LANDS

Appendix Table 25.

Von Mantel Formula

$$AAC = \frac{2 \text{ Ga}}{R}$$

AAC = Allowable annual cut

Ga = Volume of actual growing stock $\frac{1}{2}$

R = Rotation age

		Allowable Annual Cut	
Type	Rotation	Sawtimber	Other Products
WP	120	$2 \times \frac{2,016}{120} = 33.6 \text{ MCF} \times .813 \frac{1}{2} = 27.3 \text{ MCF}$	
		$27.3 \times 4.9 \frac{2}{2} = 134 \text{ MBF}$	6.3 MCF or 70 cords
PP	120	$2 \times \frac{1,413}{120} = 23.6 \text{ MCF} \times .814 \frac{1}{2} = 19.2 \text{ MCF}$	
		$19.2 \times 4.9 \frac{2}{2} = 94 \text{ MBF}$	4.4 MCF or 49 cords
L	140	$2 \times \frac{291,508}{140} = 4,164.4 \text{ MCF} \times .835 \frac{1}{2} = 3,477.3 \text{ MCF}$	
		$3,477.3 \times 4.9 \frac{2}{2} = 17,039 \text{ MBF}$	687.1 MCF or 7,634 cords
DF	140	$2 \times \frac{108,752}{140} = 1,553.6 \text{ MCF} \times .628 \frac{1}{2} = 975.6 \text{ MCF}$	
		$975.6 \times 4.9 \frac{2}{2} = 4,780 \text{ MBF}$	578.0 MCF or 6,422 cords

(Continued on next page)

Appendix Table 25 (continued)

		Allowable Annual Cut	
Type	Rotation	Sawtimber	Other Products
S	140	$2 \times 289,782 = 4,139.7 \text{ MCF} \times .911 \frac{1}{2} = 3,771.3 \text{ MCF}$ 140	
		$3,771.3 \times 4.9 \frac{2}{2} = 18,479 \text{ MBF}$	368.4 MCF or 4,093 cords
AF	140	$2 \times 23,183 = 331.2 \text{ MCF} \times .823 \frac{1}{2} = 272.6 \text{ MCF}$ 140	
		$272.6 \times 4.9 \frac{2}{2} = 1,336 \text{ MBF}$	58.6 MCF or 651 cords
WBP	140	$2 \times 28,011 = 400.2 \text{ MCF} \times .820 \frac{1}{2} = 328.2 \text{ MCF}$ 140	
		$328.2 \times 4.7 \frac{2}{2} = 1,542 \text{ MBF}$	72.0 MCF or 800 cords
LPP	120	$2 \times 138,028 = 2,300.5 \text{ MCF} \times .458 \frac{1}{2} = 1,053.6 \text{ MCF}$ 120	
		$1,053.6 \times 4.7 \frac{2}{2} = 4,952 \text{ MBF}$	1,246.9 MCF or 13,853 cords
TOTAL		48,356 MBF	3,021.7 MCF or 33,572 cords

1/ Adjusted to that growing stock which is now producing or will produce sawtimber.

2/ Conversion factor 4.9

ALLOWABLE ANNUAL CUT OF SAWTIMBER FROM HARVEST CUTTINGS
NATIONAL FOREST LANDS

Appendix Table 26

Austrian Formula

$$AAC = I + \frac{Ga - Gr}{R}$$

AAC = Allowable annual cut

I = Mean annual increment

Ga = Volume of actual growing stock

Gr = Volume of realizable growing stock -
(70 percent normal)

R = Rotation age or adjustment period

Type	Rotation	ALLOWABLE ANNUAL CUT		
WP	120	AAC =	$166 + \frac{7,798 - 7,800}{120} =$	166 MBF
PP	120	AAC =	$81 + \frac{5,708 - 3,840}{120} =$	97
L	140	AAC =	$9,580 + \frac{1,160,407 - 426,265}{140} =$	14,824
DF	140	AAC =	$5,359 + \frac{299,653 - 246,190}{140} =$	5,741
S	140	AAC =	$8,998 + \frac{1,295,359 - 467,250}{140} =$	14,913
AF	140	AAC =	$2,084 + \frac{76,239 - 125,545}{140} =$	1,732
WBP	140	AAC =	$870 + \frac{75,308 - 44,135}{140} =$	1,093
LPP	120	AAC =	$7,264 + \frac{299,932 - 236,700}{120} =$	7,791
Total				46,357 MBF

TABULAR CALCULATION OF ALLOWABLE ANNUAL CUT FOR ALL TYPES
NATIONAL FOREST

Appendix Table 27

Annual Cut: 47.0 MM Board Feet

Rotation: 135 Years

Current Age Class	Average Cutting Age	Area	Mean Annual Increment	Net Volume per Acre at Average Cutting Age	Total Volume to Cut	Years to Cut		Area Cut per Year
						Age Class	Cumulative	
Years	Years	Acres		Board Feet	MMBF	Years	Years	Acres
200+	200+	151,529	1/	82 Res- 3/ 11,420 Gr- 1,804	1,730.5 273.3	43	43	3,525
190	238 233-243	30,131	82	Res- 11,420 Gr- 3,936	344.1 118.6	10	53	3,013
170	228 223-233	27,492	82	Res- 11,420 Gr- 4,756	314.0 130.8	10	63	2,749
150	219 213-225	32,269	82	Res- 11,420 Gr- 5,658	368.5 182.6	12	75	2,690
130	210 205-215	25,886	82	Res- 11,420 Gr- 6,560	295.6 169.8	10	85	2,589
110	198 195-202	28,682	82	Res- 3,785 Gr- 7,298	108.6 209.3	7	92	4,100
90	184 182-186	19,420	82	Res- 4/ 990 Gr- 7,708	19.2 149.7	4	96	4,870
70	167 166-168	8,492	82	Res- 990 Gr- 7,954	8.4 67.5	2	98	4,246
50	154 148-160	56,656	91	Res- 546 Gr- 9,464	30.9 536.2	12	110	4,720
30	150 140-160	79,788	98	Res- 0 Gr- 11,760	0 938.3	20	130	3,989
10	140 140-140	0	98	Res- 0 Gr- 0	0 0	0	130	0
Restock	130 129-131	5,705	98	Res- 0 Gr- 12,740	0 72.7	2	132	2,852
Total		466,050						

1/ PAG from appendix table 15.

2/ MAG from appendix table 17.

3/ Average volume per acre of sawtimber strata.

4/ Average volume per acre of pole strata.

CALCULATION OF TENTATIVE ANNUAL ALLOWABLE INTERMEDIATE CUT

(NONRESERVED)

National Forest Lands

Appendix Table 28

Coram Working Circle

ANNUAL ALLOWABLE AREA TO CUT

Well-Stocked Strata	Commercial Forest (Acres)	Area Under Rotation Age		Area to Cut Annually (Acres)
		(Percent)	(Acres)	
<u>Sawtimber</u>				
W&P9W	10	0	0	0
L9W	22,497	0	0	0
D9W	4,190	36	1,508	75
S9W	8,151	47	3,830	192
AF9W	695	0	0	0
WBP9W	175	0	0	0
<u>Pole</u>				
W&P8W	10	100	10	0
L8W	4,051	50	2,025	101
D8W	9,907	100	9,907	495
S8W	940	100	940	47
AF8W	675	42	284	14
WBP8W	3,145	0	0	0
LPP8W	47,863	66	32,068	1,603
TOTAL	102,309		50,572	2,527

AVERAGE VOLUME PER ACRE

Well-Stocked Strata	Volume per Acre		Assumed Cut 1/ (Percent)	Volume to Cut Per Acre		
	Sawt.	Pole		Sawt.	Poletimber	
	(MBF)	(CF)		(MBF)	(CF)	(Cords)2/
<u>Sawtimber</u>						
L9W	20.7	700	25	5.2	175	1.94
D9W	15.8	1,490	25	3.9	372	4.13
S9W	19.3	170	25	4.8	42	.47
AF9W	10.5	400	25	2.6	100	1.11
WBP9W	9.5	450	25	2.4	112	1.24
<u>Pole</u>						
L8W	3.0	1,700	25	.8	425	4.72
D8W	2.7	1,100	25	.7	275	3.05
S8W	1.8	1,650	25	.4	412	4.58
AF8W	.9	1,430	25	.2	357	3.97
WBP8W	1.7	1,130	25	.4	282	3.13
LPP8W	5.2	1,220	25	1.3	305	3.39

1/ Percentage of cut most appropriate for stands tending to be overstocked.

2/ 90 cubic feet = 1 cord

(Continued on next page)

Appendix Table 28 (continued)

ANNUAL ALLOWABLE INTERMEDIATE CUT				
Well-Stocked Strata	Area to Cut Annually (Acres)	Volume to Cut		
		Sawtimber (MBF)	Poletimber (MCF)	(Cords)
<u>Sawtimber</u>				
L9W	0	0	0	0
D9W	75	292	27.9	310
S9W	192	922	8.1	90
AF9W	0	0	0	0
WEP9W	0	0	0	0
<u>Pole</u>				
L8W	101	80	42.9	477
D8W	495	346	136.1	1,510
S8W	47	19	19.3	215
AF8W	14	3	5.0	56
WEP8W	0	0	0	0
LPP8W	1,603	2,084	488.9	5,434
TOTAL	2,527	3,746	728.2	8,092

Appendix Table 29

Coram Working Circle

Comp. No.	Compartment Name	Total Area Acres	National Forest Area Acres	Species							Total
				WP	PP	L-DF	S-AF	GF-WRC-Co.	IP-WLP		
										M Board Feet (Scribner Dec. C)	
301	CORAM BLOCK	6,009	1,905	3	-	55	9	-	17	84	
302	Glacier	8,431	6,917	189	-	2,999	548	23	523	4,282	
303	Belton	6,106	1,931	200	-	3,988	663	20	642	5,513	
304	Coram	8,069	8,069	533	-	14,872	25,779	290	2,486	43,960	
305	Upper Emery	6,971	3,566	523	-	14,729	3,634	118	1,842	20,846	
306	Lion	4,780	729	184	-	3,924	550	21	447	5,126	
307	Abbot	6,124	6,124	1,341	-	40,276	10,082	288	2,761	54,748	
308	Emery	6,846	6,846	1,364	-	24,947	7,682	217	2,266	36,476	
309	Hungry Horse	10,002	10,002	263	-	7,236	8,307	65	1,110	16,981	
310	Turmoil	8,823	8,823	173	-	6,562	2,401	14	3,044	12,194	
311	Firefighter	7,156	7,156	1,131	-	24,424	7,918	281	2,878	36,632	
312	Ryle	5,512	5,512	514	-	11,114	6,019	105	1,839	19,591	
313	Riverside	6,204	6,204	153	-	3,367	4,582	65	427	8,594	
314	Murray	8,777	8,777	1,117	-	25,441	13,869	452	5,403	46,282	
315	Canyon	8,690	8,690	3,764	-	51,625	13,048	823	2,856	72,116	
316	Felix	9,294	9,294	3,725	-	57,539	24,130	980	3,048	89,422	
317	Logan	6,869	6,869	1,768	-	28,993	16,354	494	2,183	49,792	
318	Corkscrew	7,021	7,021	1,628	-	27,650	18,098	574	1,522	49,472	
319	Deadhorse	7,696	7,696	11	-	669	8,427	101	769	9,977	
320	Circus	6,542	6,542	96	-	3,968	1,930	42	243	6,279	
321	Dry Park	6,639	6,639	39	-	491	93	-	203	826	
322	Twin	6,349	6,329	163	-	2,854	5,224	368	289	8,898	
323	Ousel	4,945	3,988	182	-	5,026	10,065	421	886	16,580	
324	Deerlick	6,122	5,910	200	-	3,305	8,651	306	503	12,965	
325	Skiumah	5,161	5,071	531	-	9,964	6,746	614	889	18,744	
326	Crystal	8,490	8,203	30	-	1,883	1,288	5	3,284	6,490	
327	Stanton	7,721	7,070	194	-	5,522	3,728	59	2,816	12,319	
327	Tunnel										

(Continued on next page)

VOLUME OF SAWTIMBER BY COMPARTMENT

Coram Working Circle

Appendix Table 29 (continued)

Comp. No.	Compartment Name	Total Area Acres	National Forest Area Acres	Species						Total
				WP	PP	L-DF	S-AF	GF-WRC-Co.	IP-WLP	
				M Board Feet (Scribner Dec. C)						
	CORAM BLOCK (Continued.)									
328	Paola	6,753	6,527	261	-	7,571	8,243	120	2,677	18,872
329	Dickey	8,460	7,911	457	-	9,078	22,741	363	3,693	36,332
330	Essex	8,148	7,538	264	-	4,763	27,717	191	3,012	35,947
331	Sheep	6,967	6,967	156	-	4,962	23,372	218	3,089	31,797
332	Java	4,639	4,639	198	-	4,425	12,573	102	1,768	19,066
333	Spruce	4,384	4,384	59	-	1,139	406	-	528	2,132
334	Devil	8,840	8,546	62	-	1,946	4,892	30	3,859	10,789
335	Geifer	8,045	7,369	-	-	2,154	5,869	53	6,934	15,010
336	Skyland	7,860	7,830	-	-	3,604	44,897	419	8,832	57,752
337	Dirtyface	6,568	6,568	315	-	4,262	19,363	236	662	24,838
338	Charlie	8,377	8,377	139	-	1,710	16,693	41	671	19,254
339	Vinegar	7,208	7,208	24	-	1,187	695	-	1,313	3,219
340	Moose	6,185	6,185	176	-	1,672	8,324	116	682	10,970
341	Twenty-five Mile	6,729	6,729	3	-	2,199	29,362	363	5,114	37,041
342	Challenge	7,439	7,439	1	-	4,231	15,843	96	10,672	30,843
343	Bergsicker	6,104	6,104	30	-	1,137	15,191	245	837	17,440
344	Long	8,094	8,094	62	-	1,116	4,830	95	574	6,677
345	Cy	7,302	7,302	18	-	1,891	15,413	173	1,528	19,023
346	Castle	4,679	4,679	74	-	3,445	10,888	96	1,833	16,336
347	Granite West	5,491	5,491	-	-	2,746	11,603	149	6,496	20,994
348	Granite East	6,781	6,781	-	-	3,753	13,399	87	9,596	26,835
-	Subtotal	336,402	314,551	22,318	-	452,414	522,139	9,939	119,546	1,126,356
-	HUNGRY HORSE BLK.									
601	Sand	5,829	3,704	975	-	17,113	5,335	197	2,368	25,988
602	Columbia	4,138	3,658	223	-	6,757	2,041	-	3,208	12,229
603	Blaine	6,249	5,449	558	28	9,544	4,522	40	2,928	17,620
604	Aurora	8,102	7,753	1,352	-	27,317	38,500	708	4,821	72,698

(Continued on next page)

VOLUME OF SAWTIMBER BY COMPARTMENT

Appendix Table 29 (continued)

Coram Working Circle

Comp. No.	Compartment Name	Total Area Acres	National Forest Area Acres	Species							Total	
				WP	PP	L-DF	S-AF	GF-WRC-Co.	LP-WLP			
										M Board Feet (Scribner Dec. C)		
	HUNGRY HORSE BLK (Continued)											
605	Doris	9,054	9,054	830	-	8,975	73,465	1,034	3,093	87,397		
606	Lost Johnny	7,380	7,380	444	-	8,545	29,095	266	1,292	39,642		
607	Wounded Buck	11,452	11,452	655	-	14,881	43,775	551	1,522	61,384		
608	Clayton	11,980	11,980	1,640	-	40,256	38,758	814	3,518	84,986		
609	Kniff	9,135	9,135	2,583	-	49,125	42,706	1,098	4,316	99,828		
610	Graves	10,174	10,174	670	-	8,508	32,731	408	2,465	44,782		
611	Pioneer	5,907	5,907	1,163	-	27,086	30,822	684	2,302	62,057		
612	Aeneas	8,772	8,772	512	-	5,513	28,269	338	841	35,473		
613	Forest	9,035	9,035	1,463	-	36,264	41,452	870	3,066	83,115		
614	Tom Tom	6,764	6,764	11	-	2,116	27,555	267	3,172	33,121		
615	Wheeler	7,081	7,081	352	-	7,700	53,194	644	4,389	66,279		
616	Battery	6,164	6,164	2,445	-	32,238	20,363	513	2,848	58,407		
617	Quintonkon North	9,278	9,278	1,151	-	16,782	33,305	518	2,501	54,257		
618	Quintonkon South	5,398	5,398	1,074	-	13,915	25,454	588	2,725	43,756		
619	Branch	8,893	8,893	2,042	-	30,273	37,039	977	3,773	74,104		
620	Kah	6,018	6,018	717	-	15,630	4,543	190	1,082	22,162		
621	Clark	8,887	8,887	2,600	-	51,496	20,905	812	3,196	79,009		
622	Soldier	4,351	4,351	293	-	7,506	1,679	63	511	10,052		
623	Conner	7,033	7,033	455	-	8,375	35,474	461	2,732	47,497		
624	Sullivan	9,505	9,505	208	-	1,310	11,638	171	1,015	14,342		
	Subtotal	186,579	182,825	24,416	28	447,225	682,620	12,212	63,684	1,230,185		
	SPOTTED BEAR											
	BLOCK											
401	Tin	5,182	5,182	268	-	5,222	3,566	75	1,791	10,922		
402	Bruce	7,647	7,647	678	-	14,465	4,460	110	2,528	22,241		
403	Bent	11,854	11,854	3,505	396	59,504	13,002	387	7,115	83,909		

(Continued on next page)

VOLUME OF SAWTIMBER BY COMPARTMENT

Appendix Table 29 (continued)

Coram Working Circle

Comp. No.	Compartment Name	Total Area Acres	National Forest Area Acres	Species						Total
				WP	PP	L-DF	S-AF	GF-WRC-Co.	IP-WLP	
	SPOTTED BEAR BLK.	Acres	Acres	-	-	-	-	-	-	-
	(Continued)					M Board Feet (Scribner Dec. C)				
404	Web	9,560	9,560	914	-	21,414	6,076	74	3,559	32,037
405	North	6,162	6,162	180	219	4,300	1,196	9	782	6,686
406	Head	7,209	7,209	8	-	670	10,787	49	600	12,114
407	Spy	7,816	7,816	-	-	46	4,151	45	593	4,835
408	Addition	8,811	8,811	636	-	12,489	21,802	293	7,819	43,039
409	Spotted Bear	8,085	8,085	1,308	2,224	16,098	6,223	19	5,007	30,879
410	Sergeant	5,012	5,012	1,462	-	42,067	8,600	274	3,614	56,017
411	Big Bill	7,172	7,172	617	-	16,610	7,736	134	3,324	28,421
412	Limestone	6,900	6,900	1,093	-	30,237	9,688	198	7,840	49,056
413	Dean	12,655	12,655	524	-	8,319	12,311	110	13,977	35,241
414	Deadfall	11,771	11,771	535	-	6,783	43,542	904	2,832	54,596
415	Alcove	6,813	6,813	112	-	2,579	29,940	402	3,496	36,529
416	Razzle	8,672	8,672	352	-	12,352	8,619	206	896	22,425
417	Jungle	9,587	9,587	1,157	-	37,888	18,841	529	10,840	69,255
418	Bunker	4,101	4,101	262	-	8,988	4,809	125	833	15,017
419	Harrison	1,912	1,912	327	-	10,258	2,821	90	1,884	15,380
420	Silvertip	5,112	5,112	423	-	11,840	5,992	58	4,161	22,474
421	Bradley	5,402	5,402	-	-	1,750	20,057	198	3,560	25,565
422	Three Forks	6,641	6,641	241	-	4,129	7,667	41	9,643	21,721
423	Morrison	8,308	8,308	2	-	3,205	15,188	207	8,418	27,020
424	Puzzle	5,648	5,648	-	-	831	27,991	354	2,349	31,525
425	Flotilla	11,454	11,454	-	-	2,062	3,215	134	6,816	12,227
426	Schafer	8,338	8,338	56	-	2,153	13,894	108	6,091	22,302
427	Lodgepole	5,613	5,613	3	-	1,698	10,000	176	4,922	16,799
428	Tent	6,361	6,361	3	-	2,403	5,889	74	5,940	14,309
429	Gunsight	10,479	10,479	-	-	1,037	5,071	-	3,474	9,582

(Continued on next page)

VOLUME OF SAWTIMBER BY COMPARTMENT

Appendix Table 29 (continued)

Coram Working Circle

Comp. No.	Compartment Name	Total Area Acres	National Forest Area Acres	Species						Total
				WP	PP	L-DF	S-AF	GF-WRC-Co.	IP-WLP	
				M Board Feet (Scribner Dec. C)						
430	SPOTTED BEAR			-	-	-	-	-	-	-
431	BLK. (Continued)			-	-	-	-	-	-	-
432	Union	9,664	9,664	8	-	2,353	6,419	2	5,984	14,766
	Chair	8,203	8,203	-	-	2,707	5,389	41	6,978	15,115
	Dolly Varden	11,250	11,250	-	-	897	6,915	42	3,168	11,022
	Subtotal	249,394	249,394	14,674	2,839	347,354	351,857	5,468	150,834	873,026
	TOTAL	772,375	746,770	61,408	2,867	1,246,993	1,556,616	27,619	334,064	3,229,567

*This table was computed by IBM. Other tables in this plan were computed by manual methods. Any volume differences may be attributed to techniques in carrying fractions between the two methods.

FIVE-YEAR TIMBER HARVEST PLAN

Appendix Table 30

Coram Working Circle

Millions of board feet

	Sale Total	FY 1962	FY 1963	FY 1964	FY 1965	FY 1966
Under contract		26.4	16.8	5.0	1.0	
Ranger, Misc., Convert.		6.1	5.5	6.5	6.5	6.5
Essex Creek	2.0	1.0	1.0			
Trout Lake	1.0	1.0				
Graves Creek	3.5	1.5	1.5	.5		
Pioneer Face	8.0	.5	3.0	2.5	2.0	
Peters Creek	3.0		1.5	1.5		
Trail Creek	6.0	.5	2.5	2.5	.5	
Beta Creek	8.0	1.0	3.0	3.0	1.0	
Flossy Creek	8.0		2.0	3.0	2.0	1.0
Felix #2	8.0	1.0	3.0	3.0	1.0	
Paint	8.0		2.0	3.0	2.0	1.0
Baptiste L.O.	2.0			1.0	1.0	
Spruce Creek	2.0		.5	1.5		
Firefighter Face	2.0		.5	1.5		
Hoke Creek #2	4.0		.5	1.5	2.0	
Lion Creek	4.0			.5	1.5	2.0
Mazie Creek	5.0			1.0	2.0	2.0
Elam Creek	3.0			1.0	2.0	
Lid Creek	10.0			2.0	3.0	3.0
Jungle Creek	6.0		.5	3.0	2.0	.5
Spotted Bear Mtn.	2.0				1.0	1.0
Big Bill Creek	2.0				1.0	1.0
Mink Creek	3.0				1.0	2.0
Red Owl Creek	3.0				1.0	2.0
Deerlick Creek	4.0			.5	2.5	1.0
Fire Creek	3.0			.5	2.0	.5
Skyland Creek	8.0			.5	3.5	3.0
Knief Creek	8.0				1.5	3.0
Baker Creek	4.0					1.5
Emery Face	4.0					2.0
Cedar Creek	6.0					2.0
Dodge Creek	8.0					3.5
Dirtyface	8.0					2.0
Ball Creek	6.0					1.5
Aeneas Creek	8.0					1.0
Planned Total Cut		39.0	43.8	45.0	43.0	43.0

FOUR-YEAR PLANTING PLAN

Appendix Table 31

Coram Working Circle

Fiscal Year	M. Trees by Species			Acres	Location	Elevation
	DF	S	WL			
<u>P & M</u>						
1962	4			5	Tin Creek	4,000
1962		40		66	Lost Johnny	5,000
1963		20		100	Rock Creek	5,000
1963		60		100	Middle Conner	5,000
1964		30		50	Lost Johnny	5,000
<u>K-V</u>						
1962	15	16		31	Experimental Forest	4,000
1962			29	42	Experimental Forest	4,000
1962		3		10	Harris Creek	4,000
1962		10		35	Hoke Creek	4,000
1962		12		40	Felix Creek	4,000
1962		16		25	Doris Creek	5,000
1962		5		8	Rock Creek	5,000
1962		15		25	Battery	4,000
1962		12		20	Taylor Camp	4,000
1963		6		10	Silver Basin	5,000
1963		24		40	Clark Creek	5,000
1963		9		15	Clark Creek	4,000
1963		18		30	Battery	5,000
1963		15		25	Emma	4,000
1963		17		28	Forest	4,000
1963		10		15	Wounded Buck	4,000
1963	15	29	29	85	Experimental Forest	4,000
1963		12		14	Emery Creek	4,000
1964	9	13	18	50	Experimental Forest	4,000
1964		6		20	Hungry Horse Mtn.	4,000
1964		6		20	Dicky Creek	5,000
1964		15		25	Emma	4,000
1964		12		20	Clayton	4,000
1964		20		30	Wounded Buck	4,000
1964		28		45	Graves Creek	4,000
1965		15		25	Clayton	4,000
1965		35		55	Forest	5,000
1965		20		30	Wounded Buck	4,000
1965		20		30	Pioneer	4,000
1965	8	9	18	50	Experimental Forest	4,000
1965		18		35	Felix Creek	4,000
1966	15			22	Hungry Horse Mtn. #1	4,000
1966		36		60	Emery Creek	4,000
1966			25	40	Experimental Forest	4,000
1966		18		25	Clayton	5,000
1966		25		40	Pioneer	4,000
1966		25		40	Beta	4,000
1966		25		40	Flossy	4,000

TIMBER CUT
(Including Convertible Products)

Appendix Table 32

Coram Working Circle

<u>Year</u>	<u>Volume</u> M b.m.
1947	20,550
1948	12,656
1949	3,829
1950	4,381
1951	12,973
1952	20,126
1953	19,841
1954	16,696
1955	10,856
1956	30,113
1957	40,651
1958	27,024
1959	38,566
1960	41,593

Appendix Table 33

UNCUT VOLUME UNDER CONTRACT AVAILABLE FOR CUTTING

(Reference FSH 2412.5)

Forest Flathead
Working circle CoramDistrict Coram - Spotted Bear - Hungry Horse
Date 1-24-61

Com-part- ment No.	Name of Sale	Date Sold	In millions of board feet																
			Total Volume of Sale	Uncut Volume		Distribution of Uncut Balance													
				Total Volume	Volume Marked	Volume Scaled	1/1/61 to 6/30/61	FY 1962	FY 1963	FY 1964	FY 1965	FY 1966							
	<u>\$2,000 to 2 MM</u>																		
330	Dickey Creek	5/13/60	2.0	.9	.7					.9									
307	Hungry Horse Mt. #1	12/5/60	1.5	1.5	1.5				1.5										
616	Czar Creek	9/28/59	.2	.1	.1					.1									
607,608	Lid Creek Face	11/10/60	.6	.4	.4				.4										
	<u>2 MM to 5 MM</u>																		
609,611	Emma Creek	11/16/59	5.0	2.7	1.5				.7	1.5	.5								
621	Taylor Camp	5/31/60	3.3	1.2	1.2					1.2									
607	Wounded Buck	11/22/60	5.0	5.0	5.0					1.0	2.0	1.0	1.0						
304	Amery	6/3/60	5.0	5.0	4.5				.5	2.0	2.0	.5							
308	Canyon Creek	5/19/59	4.0	1.0	.7				1.0										
317	Hoke Creek	10/9/58	5.0	1.3	1.3				.3	1.0									
307	Hungry Horse Mt. #2	12/9/60	3.0	3.0	.5				.5	1.0	1.5								
402	Stony Hill	6/27/60	4.0	4.0	.5				1.0	2.0	1.0								
	<u>5 MM to 15 MM</u>																		
403,404	Bent Creek	9/18/59	9.5	8.3	3.0	1.2			1.5	3.5	2.8	.5							
616	Heinrude Creek	9/29/58	8.4	1.4	1.0					1.4									
608	Clayton Creek	6/25/59	8.7	7.0	.5				.7	2.3	3.0	1.0							
613,615	Forest Creek	6/13/60	11.8	8.4	1.0				2.0	1.7	2.7	2.0							
616,617	Battery Creek	5/22/59	9.2	4.0	2.0				.5	2.5	1.0								
621,622	Clark Creek	7/18/58	12.0	1.0	1.0					1.0									
311	Riverside Creek	4/14/58	6.2	.3	.3					.3									
	<u>15 MM and Over</u>																		
315	Felix Creek	6/26/58	16.0	3.3	3.3	1.2			10.6	26.4	16.8	5.0	1.0						
	Totals		120.4	59.8	25.0	1.2													

Appendix Table 34

PROPOSED CUT AND SELL PLANS
(Reference FSH 2412.5)

Forest Flathead District Coram, Spotted Bear, Hungry Horse
Working circle Coram Date 1/25/61

Compartment No.	Name of Sale	In millions of board feet											
		Last Half FY 1961		FY 1962		FY 1963		FY 1964		FY 1965		FY 1966	
		Sell	Cut	Sell	Cut	Sell	Cut	Sell	Cut	Sell	Cut	Sell	Cut
	0 - \$300	.8	.4		.4								
	\$300 - \$2,000	.4	.2		.2								
330	\$2,000 - 2 MM												
316	Essex Creek	2.0			1.0		1.0						
	Trout Lake	1.0			1.0								
610	2 MM - 5 MM												
	Graves Creek	3.5			1.5		1.5		.5				
611	5 MM - 15 MM												
	Pioneer Face	8.0			.5		3.0		2.5		2.0		
	0 - \$300												
	\$300 - \$2,000			1.5	1.5								
	2 MM - 5 MM			4.0	4.0								
318 & 320	Peters Creek			3.0			1.5		1.5		.5		
	5 MM - 15 MM												
403 & 411	Trail Creek			6.0	.5		2.5		2.5		1.0		1.0
604	Beta Creek			8.0	1.0		3.0		3.0		2.0		1.0
608	Flossy Creek			8.0			2.0		3.0		1.0		1.0
315	Felix #2			8.0	1.0		3.0		3.0		2.0		
316 & 317	Paint			8.0			2.0		3.0		2.0		
	0 - \$300												
	\$300 - \$2,000					1.5	1.5						
	\$2,000 - 2 MM					4.0	4.0						
317 & 318	Baptiste L.O.												
333 & 334	Spruce Creek			2.0			.5		1.0		1.0		
311	Firefighter Face			2.0			.5		1.5				

(Continued on next page)

Appendix Table 34 (continued)

PROPOSED CUT AND SELL PLANS

Compart- ment No.	Name of Sale	In millions of board feet											
		Last Half FY 1961		FY 1962		FY 1963		FY 1964		FY 1965		FY 1966	
		Sell	Cut	Sell	Cut	Sell	Cut	Sell	Cut	Sell	Cut	Sell	Cut
317	2 MM - 5 MM												
305	Hoke Creek #2						.5		1.5		2.0		2.0
611	Lion Creek					4.0			.5		1.5		2.0
621 & 622	Mazie Creek					4.0			1.0		2.0		2.0
	Elam Creek					5.0			1.0		2.0		
	5 MM - 15 MM					3.0							
607 & 608	Lid Creek					10.0			2.0		3.0		3.0
407 & 417	Jungle Creek					6.0	.5		3.0		2.0		.5
	0 - \$300												
	\$300 - \$2,000							2.0	2.0				
	\$2,000 - 2 MM							4.5	4.5				
409	Spotted Bear Mtn.												
411	Big Bill Creek							2.0	2.0		1.0		1.0
	2 MM - 5 MM												
615	Mink Creek							3.0			1.0		2.0
617 & 618	Red Owl Creek							3.0			1.0		2.0
323	Deerlick Creek							4.0	.5		2.5		1.0
310	Fire Creek							3.0	.5		2.0		.5
	5 MM - 15 MM												
336	Skyland Creek							8.0	.5		3.5		3.0
609	Knief Creek							8.0			1.5		3.0
	0 - \$300												
	\$300 - \$2,000									2.0	2.0		
	2 MM - 5 MM									4.5	4.5		
613	Baker Creek												1.5
303	Emery Face									4.0	4.0		2.0

(Continued on next page)

Compart- ment No.	Name of Sale	In millions of board feet											
		Last Half FY 1961		FY 1962		FY 1963		FY 1964		FY 1965		FY 1966	
		Sell	Cut	Sell	Cut	Sell	Cut	Sell	Cut	Sell	Cut	Sell	Cut
417	5 MM - 15 MM												
342	Cedar Creek									6.0			2.0
337	Dodge Creek									8.0			3.5
618 & 619	Dirty Face									8.0			2.0
612	Ball Creek									6.0			1.5
	Aeneas Creek									8.0			1.0
	0 - \$300											2.0	2.0
	\$300 - \$2,000											4.5	4.5
	2 MM - 5 MM												
621	Kah											4.0	
605	Doris											4.0	
314	Clorinda											5.0	
324	Rescue											5.0	
409 & 419	Meadow											3.0	
312	Riverside											5.0	
	5 MM - 15 MM												
423	Morrison											6.0	
606	Lost Johnny #2											8.0	
	Totals	15.7	.6	46.5	12.6	43.5	27.	39.5	40.0	50.5	42.0	46.5	43.0

TIMBER ACCESS ROADS--DETAILS BY PROJECTS
(Reference FSH 2412.5)

Forest Flathead Working circle Coram District Hungry Horse Date 1/27/61

Com-part-ment No.	Name of Sale	Road Project No.	Kind of Work Planned	Planned FY 1962			Proposed FY 1963			Proposed FY 1964			Road Survey	
				Miles	Govt.	Estimated Cost (M\$)	Miles	Govt.	Estimated Cost (M\$)	Miles	Govt.	Estimated Cost (M\$)	Type Planned	Date of Completion
						Oper-ator			Opera-tor			Oper-ator	Sur-vey	Design
						Active Sales								
609 & 611	Emma Creek	895D	C	1.0		6.0								
		2821	C	1.0		6.0								
		9837	C	0.5		3.0								
		No #	C	0.8		5.0								
613 & 615	Forest Creek	895E	C	2.7		15.5								
		1609	C	2.0		10.0	1.0		5.0	0.5		3.0		
		5355	C	1.0		5.0	1.8		9.0					
		1607	C				0.5		3.0					
		1608	C	0.8		4.0								
		5344	C	0.5		3.0								
621	Taylor Camp	9809	C				0.9		4.5					
		9860	C				0.9		4.5					
		No #	C	0.6		3.0								
		1115	C	2.2		12.0								
616 & 617	Battery	9845	C	1.0		5.0								
		9857	C	0.8		4.0								
		1634	C	2.6		13.5	1.0		5.0					
		1634	C	1.3		6.0	1.0		5.0					
		5252	C	1.8		9.0								
		9794	C	1.0		5.0								
		9795	C	1.0		5.0								

(Continued on next page)

Appendix Table 35
(continued)

TIMBER ACCESS ROADS--DETAILS BY PROJECTS
(Reference FSH 2412.5)

Forest Flathead		Working circle Coram		District Hungry Horse		Date 1/27/61										
Com-part-ment No.	Name of Sale	Road Proj-ect No.	Kind of Work Planned	Planned FY 1962		Proposed FY 1963		Proposed FY 1964		Road Survey						
				Miles	Estimated Cost (M\$)	Miles	Estimated Cost (M\$)	Miles	Estimated Cost (M\$)	Type Planned	Date of Completion					
												Govt.	Operator	Govt.	Operator	Govt.
607	Wounded Buck	895C	C	1.5	7.5	2.5	12.5	0.5	2.5							
					3.0	1.0						5.0				
					1.5	0.5						2.5				
608	Clayton Cr.	1633	C	0.0	3.0											
					3.5											
					6.0											
		2816	C	0.7												
		2817	C	1.2		1.4	7.0									
						0.5						3.0				
610	Lid Cr. Face	2816	C	1.1	5.5											
611	Pioneer Face	895D	C-Cu	1.0	6.0	8.9	8.9	1.0	8.9	I	Office	1962				
					3.3								7.5	I	Office	1962
					1.0								5.6	I	Office	1962
						6.0							18.0	II	Field	1962
612	Beta Cr.	895H	C-Cu	2.0	7.3	12.0	18.0			I	Office	1962				
					2.0	10.0							5.0	II	Field	1962
353	Doris Cr.	895A	R	1.5		4.8				II	Field	1962				

(Continued on next page)

(Continued on next page)

Appendix Table 35
(continued)

TIMBER ACCESS ROADS--DETAILS BY PROJECTS
(Reference FSH 2412.5)

Forest Flathead			Working circle Coram			District Hungry Horse			Date 1/27/61			
Com-part-ment No.	Name of Sale	Road Proj-ect No.	Kind of Work Planned	Planned FY 1962		Proposed FY 1963		Proposed FY 1964		Road Survey		
				Miles	Estimated Cost (M\$)	Miles	Estimated Cost (M\$)	Miles	Estimated Cost (M\$)	Type		
										Planned	Date of Completion	
Proposed Sales												
608	Flossey Cr.	2816 2817 5323 No #	C C C C		0.5 1.0 1.5 1.5		3.0 5.5 8.2 8.2	0.8 1.0 0.5 0.5	4.8 5.5 3.0 3.0	I II II II	Office Field Field Field	1962 1962 1963 1963
611	Mazie	895D 5326 No #	C-Cu C-Cu C		0.5 1.0 2.0	1.4 1.4	3.0 5.9 11.0	0.5 1.5	3.3 8.3	I I II	Office Office Field	1962 1962 1962
607 & 608	Lid Cr.	2816 2817 5323 No #	C C C C		1.0 1.0 0.8		7.3 5.5 4.5	2.3 0.5 3.5	16.4 3.0 19.2	I II II II	Office Field Field Field	1962 1962 1962 1962
621 & 622	Elam	9734 2820 2831	C C C					1.0 1.0 1.5	5.5 5.5 8.2	II II II	Field Field Field	1963 1963 1963
344	Graves Cr.	9796	C	2.5	15.0							
615	Mink Cr.	1610 No #	C-Cu C					2.8 1.2	3.5 6.5	2 2	2 2	1964 1964

Continued on next page

(Continued on next page)

Appendix Table 35
(continued)

TIMBER ACCESS ROADS--DETAILS BY PROJECTS
(Reference FSH 2412.5)

Forest Flathead			Working circle Coram			District Hungry Horse			Date 1/27/61			
Com-part-ment No.	Name of Sale	Road Proj-ect No.	Kind of Work Planned	Planned FY 1962		Proposed FY 1963		Proposed FY 1964		Road Survey		
				Miles	Estimated Cost (M\$)	Miles	Estimated Cost (M\$)	Miles	Estimated Cost (M\$)	Type		
										Oper-ator	Govt.	Oper-ator
Proposed Sales												
609	Knief Cr.	1605	C					1.0		7.0	1	1964
		1603	C					1.0		5.5	2	1964
		5341	C					1.0		5.5	2	1964
		5342	C					1.0		5.0	2	1964
		No #	C					1.0		5.0	2	1964
617 & 618	Red Owl	2807	R-Cu					2.5	3.5	13.5	2	1964
	Ranger - Small & Conv't.		C	2.0		8.0	2.0	2.4	8.0	2	2	1962
Totals - Hungry Horse				40.5	17.6	214.7	34.8	5.2	199.1	35.4	9.4	192.6

(Continued on next page)

Appendix Table 35
(continued)

TIMBER ACCESS ROADS--DETAILS BY PROJECTS
(Reference FSH 2412.5)

Forest Flathead			Working circle Coram			District Coram			Date 1/26/61																		
Com-part-ment No.	Name of Sale	Road Proj-ect No.	Kind of Work Planned	Planned FY 1962			Proposed FY 1963			Proposed FY 1964			Road Survey														
				Miles	Govt. ator	Estimated Cost (M\$)	Miles	Govt. ator	Estimated Cost (M\$)	Miles	Govt. ator	Estimated Cost (M\$)	Type Planned	Date of Comple-tion													
															Oper- ator	Miles	Govt. ator	Oper- ator	Miles	Govt. ator	Oper- ator	Miles	Govt. ator	Oper- ator	Miles	Govt. ator	Oper- ator
330	Dickey Cr.	1639 1639 1639A	R R C	2.9 1.0 1.1		13.2 4.2 4.3																					
307	Hungry Horse Mtn. Junction #1	1617 5328	C C	0.8 0.8		6.5 3.2																					
304	Emery Cr.	1614 9781 5318	C C C	3.0 3.0 1.5		15.4 12.0 7.1	2.2 0.3	14.0 1.3																			
311	Riverside	896 896A	C C	0.2 2.0		2.1 8.0																					
308	Canyon Cr.	1624A 5322 5361 9778	C C C C	0.2 0.3 0.9 0.6		1.0 1.5 3.5 2.5																					
315	Harris Paint	1631 2833 2835	C C C	0.5 2.0		3.0 6.0	0.6 1.4	3.5 3.1																			

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Appendix Table 35
(continued)

TIMBER ACCESS ROADS--DETAILS BY PROJECTS
(Reference FSH 2412.5)

Forest Flathead			Working circle Coram			District Coram			Date 1/26/61						
Com-part-ment No.	Name of Sale	Road Proj-ect No.	Kind of Work Planned	Planned FY 1962			Proposed FY 1963			Proposed FY 1964			Road Survey		
				Miles	Estimated Cost (M\$)		Miles	Estimated Cost (M\$)		Miles	Estimated Cost (M\$)		Type Planned	Date of Completion	
					Govt.	Operator		Govt.	Operator		Govt.	Operator			
317	Hoke Cr.	1625	C	1.3	3.5										
		2839	C	1.3	3.5										
		9775	C	0.5	1.3										
307	Hungry Horse Mtn. Jct.#2	1617	C	0.5	5.6	0.4	5.0								
		5319	C	0.3	2.3	0.3	2.3								
Proposed Sales															
330	Essex Cr. -	1640	C-Cu	2.0	4.3	13.6	0.5	6.5							
316	Marion Lake Trout Lake	5309	C	0.0		1.9									
315	Felix Cr.#2	1632	C	1.5	6.0	3.0	16.4	0.4	2.4	1	10-61				
		2837	C	0.5	2.0	0.5	2.0			2	7-61				
		2834	C	0.5	2.0	0.5	2.0			2	7-61				
		1631A	C	0.5	2.0	0.5	2.0			2	7-61				
		2833	C	0.5	2.0	0.5	2.0	0.2	0.8	2	7-61				
316 & 317	Paint Cr.	1632	C-B		3.5	3.0	15.5	1.0	6.5	1	10-61				
		5334	C			4.0	16.0	2.0	8.0	2	7-61				
318 & 320	Peters Cr.	1636	C			1.0	7.5	0.5	4.0						
		9784	C			1.0	4.0	0.5	2.0	2	9-61				

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Appendix Table 35
(continued)

TIMBER ACCESS ROADS--DETAILS BY PROJECTS
(Reference FSH 2412.5)

Forest Flathead			Working circle Coram			District Coram			Date 1/27/61						
Com-part-ment No.	Name of Sale	Road Proj-ect No.	Kind of Work Planned	Planned FY 1962			Proposed FY 1963			Proposed FY 1964			Road Survey		
				Miles	Estimated Cost (M\$)		Miles	Estimated Cost (M\$)		Miles	Estimated Cost (M\$)		Type Planned	Date of Completion	
					Govt.	Oper-ator		Govt.	Oper-ator		Govt.	Oper-ator			Govt.
Proposed Sales															
317 & 318	Baptiste L.O	10106	C												
311	Spruce Cr.	569	C&B												
		2844	C												
		896A	C	1.0	3.5	8.5	0.5	3.5	2.0	7.0	0.5	3.5	1	2	8-62
304	Firefighter Face	1621	C												
		5311	C	0.5											
		5312	C	1.0											
323	Deerlick	1629	C&B												
		10107	C												
336 & 310	Skyland Cr. Fire Cr.	10108	C												
		896	C												
		2814	C												
Ranger-Small & Convt.															
Totals-Coram															
				2.5	1.0	12.2	2.5	1.5	12.2	3.0	1.5	15.0	2	2	9-63
				32.7	8.8	151.4	25.2	5.0	134.8	26.6	5.0	133.7			

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Appendix Table 35
(continued)

TIMBER ACCESS ROADS--DETAILS BY PROJECTS
(Reference FSH 2412.5)

Forest Flathead			Working circle Coram			District Spotted Bear			Date 1/27/61					
Com-part-ment No.	Name of Sale	Road Proj-ect No.	Kind of Work Planned	Planned FY 1962			Proposed FY 1963			Proposed FY 1964			Road Survey	
				Miles	Estimated Cost (M\$)		Miles	Estimated Cost (M\$)		Miles	Estimated Cost (M\$)		Type Planned	Date of Completion
					Govt.	Opera-tor		Govt.	Opera-tor		Govt.	Opera-tor		
	Trail Cr.	568	C&B	1.0	9.6	7.4	1.2	8.0	1.0	7.4	1	1		8-61
		2853	C	0.4	1.0	2.2	0.6	4.4	0.2	1.5				
		9865	C	0.4	1.0	2.0	0.6	4.4	0.2	1.5				
		10101	C	0.4	1.0	2.0	0.6	4.4	0.3	1.6				
		10102	C	0.3	1.0	2.0	0.7	4.5	0.3	1.6				
	Jungle Cr.	2826	C&B				2.5	10.0	1.5	10.2	1	1		8-62
		10103	C				2.0	3.8	2.0	7.1	2	2		8-62
	Spotted Bear Mtn.	38	C											
		5377	C						1.0	7.8	1	1		6-63
									2.0	10.8	2	2		6-63
	Big Bill Cr.	568	C						1.0	1.9	1	1		7-63
		10104	C						1.0	4.9	2	2		7-63
	Ranger-Small & Convt.		C	1.0	1.0	4.8	1.0	4.6	0.5	3.1	2	2		8-65
	Totals - Spotted Bear			3.5	14.6	20.4	9.2	14.0	11.0	66.3				

The following from the original have not been reproduced:

Map showing Land Use

Compartment

" " Ownership

" " Existing Roads 1960

" " Proposed Principal Roads and Sale Areas - 5-Year Plan

	Proposed Principal Roads
" "	Location of Paired Plots

